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## ABSTRACTS

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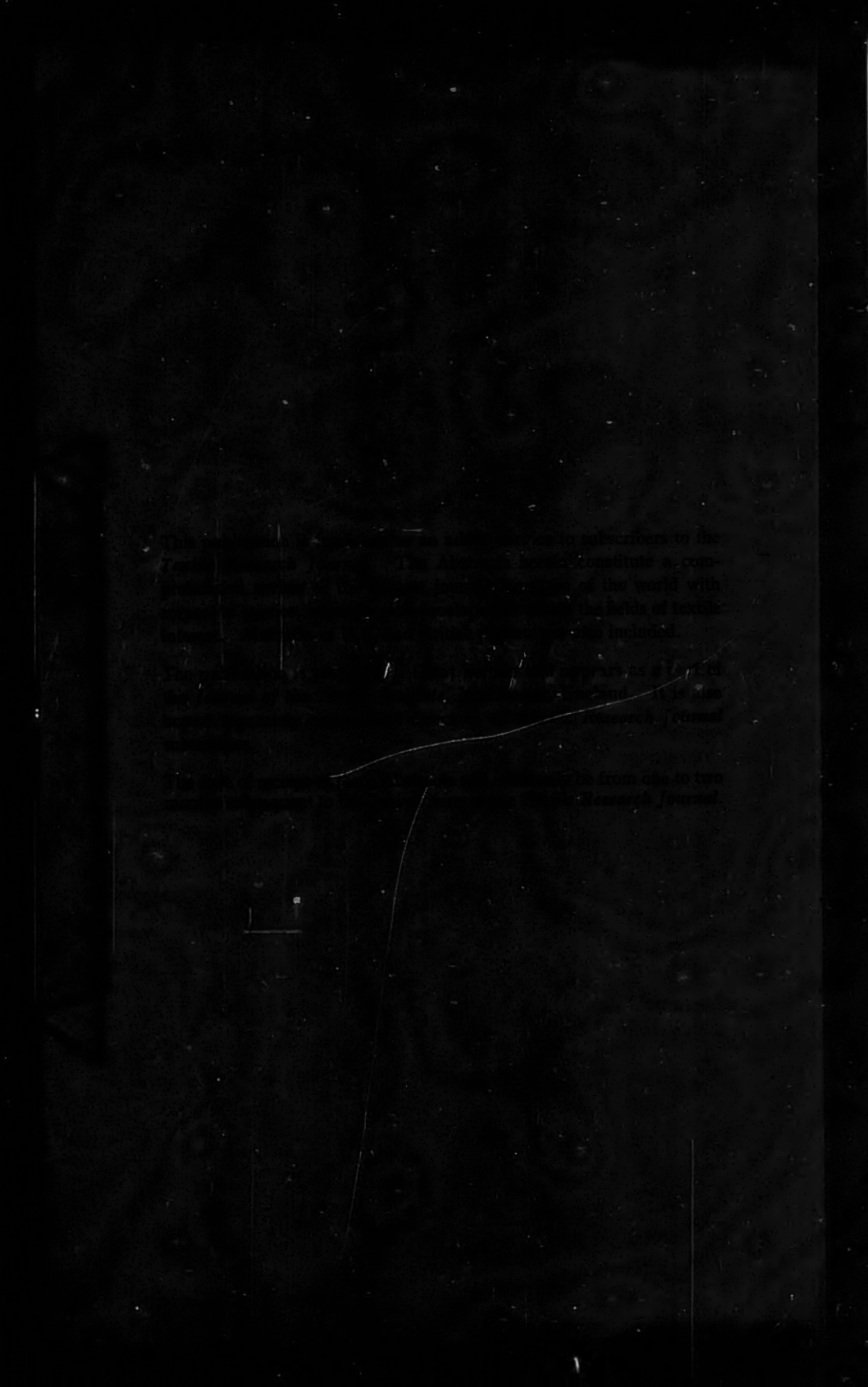


THE JOURNAL OF THE
TEXTILE INSTITUTE

# ABSTRACTS

*(The titles which are set in bold-face are intended as "scanning titles" for ease in classifying and filing. Where these are not substantially the authors' titles the exact titles are set in parentheses.)*

## 1—FIBRES AND THEIR PRODUCTION

(B)—ANIMAL

**Sheep Scabies.** H. E. Kemper. *Nat. Wool Grower*, 1951, 41, No. 3, 18-20. The importance of sheep scab is discussed. The mite (*Psoroptes equi*, var. *ovis*) and its activities are described, and details given of old and new methods of treatment. Photographs show various stages of the disease. Conditions that may be confused with scab are briefly indicated. **W—1B.**

(C)—VEGETABLE

**Cotton Growing in Uganda.** *Ann. Rep. Dept. Agric. Uganda*, 1948, 96 pages. The report covers the period April, 1947, to March, 1948. Cotton is dealt with mainly in the botany section, pp. 12-21, where breeding work, and fertiliser and sowing date trials, are described. Fertiliser trials were also conducted for groundnuts. In other sections reports are given on cotton pests (pp. 2-3), cotton seed chemistry (8, 11), cotton cultivation and yield (31-33, 53, 58-60, 68, 71, 81-89) and groundnuts (35, 58, 72, 92). **C—1C.**

**Cotton in Africa.** Read P. Dunn, Jr. *National Cotton Council Pamphlet*, (U.S.), 1950, May, 19 pages. This is a summary of detailed studies of the principal cotton-growing areas of Africa, made by the National Cotton Council (Tennessee). Individual reports will follow. The history, present production, potential production, research programmes, marketing and future prospects of cotton growing in Africa are considered, as well as textile production. Maps are given showing the distribution of crop potentialities, rainfall, soils, human population, tsetse fly infestation and land elevations. **C—1C.**

**East African Sisal Industry.** Anon. *Fibres*, 1950, November, p. 409. This is a review of the report for 1949 issued jointly by the Sisal Growers Associations of Kenya and Tanganyika. Production, the labour force, research, reversion to the free market, imposition of an export tax, and the opening of a London Office, are discussed. **C—1C.**

(D)—ARTIFICIAL

**French Develop Textile Filament from Castor Bean.** Anon. *Daily News Record*, 1950, 119, June 20, p. 35 (through *Text. Tech. Digest*, 1950, 7, No. 10, p. 779). The properties of "Rilsan", a superpolyamide filament made from the castor bean, are reported. **C—1D.**

**Highly Polymerised Regenerated Cellulose. Parts VIII and IX.** Tatsuya Noguchi. *J. Soc. Chem. Ind. Japan*, 1942, 45, pp. 57-59 (through *Chem. Abstr.*, 1950, 44, No. 22, p. 11087[b]). (VIII) The relationship between the properties of 120-denier viscose rayon and the concentration of sodium sulphate in the coagulating liquor have been studied. Values of tensile strength and elongation, and determinations of "feel" are reported for 14 viscose rayon yarns, and a series of cross-sectional photomicrographs are also given. (IX) The relation between the concentration of zinc sulphate in the coagulating liquor (viscose process) and the properties of the regenerated cellulose has been studied. With increasing zinc sulphate concentrations (sulphuric acid and sodium sulphate concentrations being constant), the fibres are flattened and the skin becomes more clearly developed. Spinning conditions are fully described. (For Parts VI and VII, see *J. Textile Institute*, 1951, 42, A143.) **C—1D.**

**Nylon.** G. Pelanjon. *Rayonne*, 1951, 7, No. 1, pp. 49-52. This is a general discussion on the manufacture and properties of nylon. C—**1D.**

**Polyvinyl Alcohol Fibre: "Gosei Ichigo": Properties.** Ichiro Sakurada, Hiroshi Kawakami, and Shoki Lee. *Chem. High Polymers*, 1946, 3, pp. 1-5; 6-12; 13-20; 146-151 (through *Chem. Abstr.*, 1950, 44, No. 22, 11107[8]). These four articles deal with (*a*) mechanical tests on fabrics of "Gosei Ichigo" a synthetic polyvinyl alcohol fibre, and on its union fabrics with crimped viscose rayon staple; (*b*) the wet heat drawing of polyvinyl alcohol fibre; (*c*) the dry and wet heat drawing of this fibre; and (*d*) the abrasion resistance of single fibres of "Gosei Ichigo". C—**1D.**

**Viscose Yarn Production in Northern Ireland.** Anon. *Fibres*, 1950, November, pp. 393-395. This is a description, with photographs, of the scope and activities of the Courtauld's continuous viscose spinning factory at Carrickfergus, where spinning, washing, treating, drying, and collecting yarn on the bobbin are all done in one continuous operation. C—**1D.**

**Dacron.** *Hosiery Ind. Wkly*, 1951, 59, (13), 15. Note on the substitution of the name "Dacron" for du Pont's polyester fibre, "Fiber V," recently named "Amilar." The new name has been introduced to avoid possible confusion of "Amilar" with an unrecorded commercial name. H—**1D.**

## 2—CONVERSION OF FIBRES INTO FINISHED YARNS

### (A)—Preparatory Processes

**Continuous Process Nylon Waste Opening.** Anon. *Amer. Wool Cotton Rep.*, 1950, 64, August 31, p. 6 (through *Text. Tech. Digest*, 1950, 7, No. 10, p. 784). A continuous process for reducing waste nylon fabric to the fibre stage is described. C—**2A.**

**New Cotton-opening Machine for Textile Mills Developed by USDA.** Anon. *Official News Release*, U.S. Department of Agriculture, 1950, September 4. Details are given of the design and performance of an improved machine for opening and fluffing baled cotton. In contrast to the usual blades or beaters, the new machine employs a number of toothed, gin-saw or "licker-in" wire cylinders arranged one above the other and all rotating in the same direction. C—**2A.**

**Roving Frame Maintenance.** P. M. Willingham. *Whitin Rev.*, 1950, 17, No. 5, pp. 11-14. Some advice is given on the maintenance of roving frames. C—**2A.**

**Warner & Swasey's Pacific Converter, Pin Drafters and Modern Weaving Machines.** H. P. Balsom. *Canad. Text. J.*, 1951, 68, No. 5, 55-61. The preparation of blended fibres, using the Warner & Swasey Pacific Converter and pin drafter, is described. The Sulzer weaving machine is being manufactured by Warner & Swasey (in U.S.A.). W—**2A.**

**Woollen Yarns: Uniformity.** ("Die Frage der Gleichmässigkeit von Streichgarnen.") A. Strang. *Melliand Textilber.*, 1951, 32, 79-80. The woollen card is responsible for yarn uniformity, and shortcomings in its design are discussed. The thread on the card can be controlled in the following way: on each of the 8 condenser bobbins the threads are designated as 1 to 20; the mean thread weights of each 20 threads are ascertained, and from these the total mean; if the individual mean does not deviate more than 10 per cent. from the total mean, the levelness is assumed to be satisfactory. Measurements are best made 1–1½ days after the beginning of a new batch. W—**2A.**

**Carding: Vacuum Stripping Unit.** ("Compact Vacuum Stripping Unit Cuts Down Time in Woollen Card Room.") *Text. Industr.*, 1951, 115, No. 2, 111. A New England Machine Works vacuum unit designed for portable stripping has been permanently positioned in an American mill. A flexible hose is brought to the card on a cart where it is normally stored. One end of the hose is coupled to a duct with outlets between every two cards, and the other end to a portable traverse stripping nozzle. All three cylinders, the second doffer, and the finisher doffer of tape condensers are stripped by hand-cranking the traverse mechanism.

The first doffer, and the finisher doffer of ring condensers are hand-stripped. It is claimed that two men can strip a card in 1¼ hr., whereas this previously needed six men. W—**2A.**

**Loading System for Peralta Machine.** ("Pneumatic Device Lowers Peralta Maintenance Costs.") *Text. Industr.*, 1951, **115**, No. 2, 139, 143. A Foxboro pneumatic loading system incorporated with the Peralta machine has been installed in an American mill. Motors operated from the mill supply of compressed air at 80 lb./sq. in. are coupled to the burr crusher by means of adapting plates. Loading of various grades of wool stock is duplicated readily with the aid of a pressure regulator, and readings made on a pressure gauge from 0–100. At 0 reading, the deadweight of the top roller exerts a presser of 1 ton. W—**2A.**

(B)—Spinning and Doubling

**Desoutter Roll Picker.** Anon. *Fibres*, 1950, November, p. 413. The tool described, a tapered needle running at 10,000-18,000 r.p.m., picks up instantaneously all fly from steel rollers, lappet guides and stands and adjacent parts, while the frame is running. It weighs only eight ounces. C—**2B.**

**How Much Power Does a Spindle Use?** Robert L. Newell. *Text. World*, 1950, **100**, No. 12, pp. 122-123. The results of an investigation of the power requirements of a spinning spindle are presented, and indicate the effects on power consumption of spindle speed, oil and viscosity, and package size. C—**2B.**

**Ring Spinning Frames: Roller Bearing Top Rollers.** Hoffman-Tweedales Ltd. *Platts Bull.*, 1950, **7**, No. 5, pp. 99-100. A description is given (with illustrations) of the roller-bearing front top rollers manufactured by Hoffman-Tweedales Limited. C—**2B.**

**Spinning Calculations Simplified. Part 15.** Platt Bros. (Sale) Ltd. *Platts Bull.*, 1950, **7**, No. 5, pp. 105-110. Graphs are given for the calculation (for ring doubling frames) of (1) twist wheels for various turns per inch and twist constants, (2) tin roller speed for various spindle speeds and spindle wharve diameters, (3) front roller speed and delivery rate for various spindle speeds and turns per inch, and (4) maximum spindle speeds when doubling with low turns per inch. (For part 14 see *J. Textile Institute*, 1951, **42**, A146.) C—**2B.**

**Spinning Tension Measured Continuously.** Paul C. Walters. *Text. World*, 1950, **100**, No. 12, pp. 153, 155. A device which continuously measures yarn tension on the spinning frame is described and illustrated. The usual thread guides are replaced by guides mounted on a shaft, such that the drag of the yarn causes the shaft to twist, so causing a change in the electrical balance of a bridge circuit. C—**2B.**

**Ambler Super-draft System Available in U.S. from McGlynn Hays.** *Text. World*, 1951, **101**, No. 3, 159-160. The Ambler Super-draft system has been designed as a component part of the McGlynn Hays frame. The improved machine provides settings from a draft of 20 to 200. Change of draft is obtained by setting a dial on a variable-speed motor geared to the front rollers. Conversion includes modification of the existing back roller assembly. W—**2B.**

**Worsted Yarns: Some Methods of Clearing.** *Wool Rec.*, 1951, **79**, 1412. Comments on the importance of clearing, and the precautions needed for satisfactory clearer operation. W—**2B.**

(C)—Subsequent Processes

**Cotton Waste.** George H. Dockray, Barkley Meadows, and Leonard Smith. *Text. Res. J.*, 1950, **20**, No. 10, pp. 684-718. This comprehensive survey covers (1) the production and marketing of cotton waste (including several tables of statistics), (2) the processing of cotton waste, (3) the analysis of cotton waste, (4) waste reduction and control, and (5) opportunities in cotton waste research. A glossary of the terms used in connection with the waste cotton industry is included, and a bibliography containing over 160 references is given. C—**2C.**

(D)—YARNS AND CORDS

**Fancy Yarns: Production on Whitin Twisters. Part IV.** Whitin Machine Works. *Whitin. Rev.*, 1950, **17**, No. 5, pp. 20-23. In this, the concluding article of the series*, instructions are given for the production of covered or wrapped yarns on Whitin fancy yarn twisters. (*For Part III, see *J. Textile Institute*, 1951, **42**, A149.) **C—2D.**

PATENT

**Wool Blending Machines.** J. D. Townsend. B.P.651,344 of 14/3/1951. A wool blending machine has one or more toothed drums operating over grids. The wool is fed to the drums by means of fluted rollers which can be adjustably set from the first toothed drum to open any longer wool staples without undue fibre breakage. The shorter staples are opened by interaction between the teeth on the drum or drums and stationary teeth mounted on a frame which can be raised or lowered to move the teeth on the frame towards or away from the teeth on the drum. The machine thus blends wools of varying staple lengths. W.

## 3—CONVERSION OF YARNS INTO FABRICS

(A)—PREPARATORY PROCESSES

**Warping From Rayon Cakes.** ("You Should Now Be Able to Warp Rayon from Cakes.") John S. Chaya. *Text. World*, 1950, **100**, No. 12, pp. 113-115. A system for warping rayon directly from the cake is described with illustrations. **C—3A.**

(B)—SIZING

**Sizing of Viscose Rayon: Some Observations.** ("Observations sur l'encollage de la rayonne viscose.") Antonio Belloni. *Rayonne*, 1951, **7**, No. 1, pp. 33-42. Serious physical and chemical degradation of rayon yarns can occur during the sizing operation. Rayon may be sized in (i) sheet-form, or (ii) in hank or cake form. The conditions necessary for good sizing in either method are listed, and the factors causing defects are described together with means of eliminating those factors, several of which may be present in the linseed oil emulsion, for example, acidity, metallic catalysts added to the oil as driers, non-homogeneous polymerisation of the oil, presence of natural resins, and so on. It is also pointed out that difficulty may arise in desizing, for example with aged, oxidised linseed oil. Finally, the conditions for removing, and the identification of, linseed oil and starch sizes are described. **C—3B.**

**Weavers' Thread Sizing: Variable Speed Drives.** John Lowson, Jnr. & Co., Ltd. *Elect. Rev.*, 1951, **148**, No. 3820, pp. 277-280. An illustrated description is given of a sizing range, incorporating a hot-air drying chamber, which is driven and controlled entirely by electrical power. **C—3B.**

(C)—WEAVING

**Impressions of the American Rayon Weaving Industry.** H. Siddle. *J. Textile Institute*, 1950, **41**, No. 12, pp. P819-826. The methods employed in the American rayon weaving industry for each process from the yarn to the grey cloth are described. A discussion of the paper is reported (*ibid*, pp. P.826-831). **C—3C.**

**Staubli Dobbies.** W. R. Middlebrook. *Text. Mfr.* 1951, **77**, January, 3-7. Technical descriptions are given of the Staubli lag dobby and the Staubli "paper" dobby. The Staubli card-cutting machine is also mentioned. **C—3C.**

**Textile Manufacturing Costs.** ("Where Does Your Cost Dollar Go in Manufacturing?") Fred Lindemann. *Text. World*, 1950, **100**, No. 12, pp. 108-109, 236. Five "pie charts" are given which show the costs per yard (in America) involved in the manufacture of the following fabrics: cotton print, cotton voile, rayon twill, wool convert, and worsted twill. The details given are briefly discussed. **C—3C.**

**Warner and Swasey Sulzer Loom: Report on Performance.** ("Warner & Swasey Weaving Machines Tested at Cleveland Worsted.") William A. Newell. *Text. World*, 1950, **100**, No. 12, pp. 110-112, 230, 232, 234, 236. A brief account is given of the performance of a number of Warner and Swasey Sulzer looms installed in an American worsted mill. Photographs of the looms are shown. **C—3C.**

**Weaving Problems.** D. C. Snowden. *J. Textile Institute*, 1950, 41, No. 12, pp. P832-838. Three problems concerned with weaving are discussed: (*a*) the control of the warp during weaving, (*b*) methods of weft insertion, and (*c*) the mixing of irregular weft yarns to reduce, or eliminate, weft bars or streaks. A discussion of the paper is reported (*ibid*, pp. P838-842). C—**3C.**

**Rayon Fabric Construction.** A. T. C. Robinson. Thomas Skinner and Co. (Publishers) Ltd. 1950, 180 pages. 274 diagrams and photographs. This book presents in collective form the author's articles on the construction of rayon fabrics, which have appeared in *Skinner's Silk and Rayon Record* (previously called *Silk and Rayon*) over the past two years. C—**3C.**

**Stains in Manufacturing and Processing: Some Causes and Preventive Measures.** *Wool Rec.*, 1951, 79, 1329, 1331, 1333. The use of mineral-based oil for lubricating weaving and incidental machinery is regarded as false economy. The occurrence is discussed of stains in the loom due to oil, iron, or the use of mineral oil mixed with whitening for the twisting-in of warps. The limitations of solvents for stain removal are briefly noted. W—**3C.**

(D)—KNITTING

**Hosiery Length Variation.** Anon. *Underwear & Stockings*, 1949, 3, October, pp. 6-7 (through *Text. Tech. Digest*, 1950, 7, No. 10, p. 806). The variation in the leg length of hosiery by reason of the loop length (and thus by yarn tension) is discussed. Alteration in leg length during seaming and finishing is also mentioned. C—**3D.**

**Yarn: Knitting Properties.** *Hosiery Trade J.*, 1951, 58, (688), 30-36. Report of discussion on yarn faults and their effect on knitted fabrics and knitting machinery, held at joint meeting of Leicester Textile Society and Leicester Yarn Agents' and Merchants' Association. H—**3D.**

**Backed Fabrics: Knitting.** J. B. Lancashire. ("Backed fabrics.") *Hosiery Times*, 1951, 24, (263), 17-21. Describes the stitch construction and the method of knitting of backed fabrics, dealing with weft-knitted plush, terry cloth, laid-in fabrics, and fleecy fabrics. Diagrams. H—**3D.**

**Warp Knitting Machines.** J. Rab. ("Operating principles of Simplex and Milanese machines.") *Knitted Outerwear Times*, 1951, 19, (13), 5, 11. H—**3D.**

**Raschel Knitting Machine.** *Knitted Outerwear Times*, 1951, 19, (12), 5, 38-9. Discusses the design and applications of the Premier Knitter, a Raschel machine, recently announced by the Premier Textile Machinery Co. Inc. Illustration. H—**3D.**

(F)—SUBSEQUENT PROCESSES

**Hosiery: Mending.** *Hosiery Trade J.*, 1951, 58, (688), 24. Note on a new device introduced by Marvel Speciality Co. Inc., Kentucky, for mechanically repairing drawn threads and snags in nylon hose. The device comprises a wheel of twelve angled steel points, driven by a 1/20 h.p. foot-controlled electric motor. The faulty portion of the stocking is stroked with the revolving points. H—**3F.**

(G)—FABRICS

**Polythene Balloons in High-altitude Research.** Anon. *Brit. Plastics*, 1951, 24, January, pp. 5-8. An illustrated description is given of balloons (from 25 to 100 feet in length) made up of polythene sheet, which are being used for high-altitude cosmic radiation research. C—**3G.**

**Rayon Staple in Cotton Fabrics: Some Swiss Applications.** ("La fibranne en tissus coton. Quelques exemples suisses.") A. Linder. *Rayonne*, 1951, 7, No. 1, pp. 57-63. Provided that suitable types of cotton and viscose staple fibre are selected, several advantages are to be obtained in preparing mixture yarns from them. These include: improved appearance, favourable production cost, and greater yarn regularity than with pure cotton. The characteristics of 85 per cent./15 per cent., 70 per cent./30 per cent., and 50 per cent./50 per cent. cotton/viscose mixture yarns are detailed, and the construction and properties of fabrics prepared from them, for example, washable crêpe, cretonnes, and shirt poplins, are described. Properties tabulated include yarn regularity, creasability, abrasion-resistance, and tensile strength. C—**3G.**

**Felt: Engineering Properties.** J. B. Campbell. *Materials and Methods*, August, 1950, pp. 47-51. The functional characteristics and properties of various standard types and grades of felt are surveyed, and shown in tabular form. W—**3G.**

**Felt: Use in Engineering.** J. B. Campbell. *Materials and Methods*, October, 1950, pp. 72-76. The question of felt selection for specific uses is discussed. Industrial applications of felt are described, *e.g.* for friction, cushioning, sealing, wicking, feltering and insulating. W—**3G.**

**Wool Blankets for Use by Hospitals and Local Authorities.** *Brit. Standard* 1681/1951. This standard provides minimum requirements for the manufacture, processing and finishing of wool blankets, and includes methods of test. Standard requirements are given for nine blankets, and include size, weight, weave, colour, threads per inch warp and weft way, and minimum breaking loads warp and weft way. Methods of test are given for conditioning, relaxation shrinkage, shrinkage on laundering, number of threads per inch, weight, width and length, and breaking load. W—**3G.**

PATENT

**Circular Knitting Machine: Loop-cutting Device.** J. N. Gilbreath. U.S.P. 2,543,574 of 5/12/1949: 27/2/1951. Means for engaging and cutting loops of connecting courses of tubular ribbed fabric produced continuously. The dial post is extended to a point below the needle cylinder, and the loop-cutting device is mounted on the dial post extension. Diagrams. H.

## 4—CHEMICAL AND FINISHING PROCESSES

(B)—BOILING, SCOURING, DEGUMMING AND WASHING

**A Foam Method for Degumming Raw Silk.** F. Bryant. *Text. Res. J.*, 1950, **20**, No. 10, pp. 735-736. A foam method for degumming raw silk skeins is described. It is claimed that the yarn produced is free from tensile strength degradation, and has a superior winding efficiency. It is suggested that a large part of the variation in the published values for certain physical properties of fibroin, for example isoelectric-point *pH*, may be due to variation in the initial material which could arise from the use of different degumming procedures. C—**4B.**

**Wool Scouring: Some Aspects of the Emulsion Process.** G. N. Bhat. *Indian Text. J.*, 1950, **61**, 34-37, 43 (through *Chem. Abs.*, 1951, **45**, 1772). The formation and growth of wool, impurities in raw wool, the principles of operation and characteristics of an ideal scouring liquor, the nature of the emulsifying agent, temperature of scour, and quality of water needed for wool scouring are briefly discussed. W—**4B.**

(D)—MILLING

**Fulling Characteristics of a Light-weight Woollen Fabric.** K. S. LaFleur. *Amer. Dyest. Rep.*, 1951, **40**, 145-148. The felting properties of various media have been compared on the basis of (1) rate and degree of felting and degree of irreversibility, (2) relative freedom from wrinkles and cemented folds, and (3) desirable handle. A specially-designed laboratory milling machine was used for the tests. Products which are fat-derived to a high degree, and which are solid at normal room temperature, seem to produce the most satisfactory felting, as judged by freedom from cemented folds, and desirable handle, but the milling rate is slow; it is uncertain whether slow milling is an essential factor or merely a coincidental property of the more desirable media. No product or combination has been found ideal for both milling and scouring and economically acceptable. The most satisfactory individual product is soap; the most satisfactory combination products are soap (for milling) with an alkylolamide condensate (for alkaline scouring), or sulphonated tallow (for milling) with a polyoxyethylene condensate (for saline scouring). While it seems quite certain that soap is not indispensable for good milling, it is still difficult to replace satisfactorily. W—**4D.**

(G)—BLEACHING

**Effect of Bleaching on the Average Degree of Polymerisation in Cellulose Fibres.** ("Zur Kenntnis der Beeinflussing des Durchschnittspolymerisationsgrades von Cellulosefasern durch das Bleichen.") Kaspar Zwicky. *Text. Rdsch.*, 1951, **6**, No. 1, pp. 1-11; No. 2, pp. 53-66. The conditions and effects of bleaching cotton, mercerised cotton, "transparent" cotton (organdie), and bright and matt viscose rayon, with hypochlorite, peroxide, chlorite, and permanganate, have been studied by means of measurements of fluidity in cuprammonium, and viscosity of the nitrates in *n*-butyl acetate. The degree of polymerisation was estimated from an expression derived from that of Battista in the

case of the fluidity measurements, and from the formulæ of Staudinger, Signer and Mathes in the case of the viscosity measurements. The variability of the results with the fluidity measurements was no greater, and in some cases less, than with the viscosity measurements. It was observed that most degradation occurred below *pH* 9 with hypochlorite, and above *pH* 12 with peroxide; whereas chlorite was relatively mild, and permanganate severe, in degradative effect. The effect of washing with sodium perborate on bleached cotton materials with fluidities ranging from 2 to 17 was also studied, and the number of molecular chain scissions per 10,000 glucose units calculated. C—4G.

(I)—DYEING

**Action of *pH* on Depth of Shade of Cotton Dyes: Application to Wool Union Dyeing.** ("Action du *pH* sur crendement des colorants pour coton. Application à la teinture des tissus mi-laine.") Ch. Faure and J. Coupat. *Teintex*, 1951, **16**, No. 1, pp. 3-11 (5 pages). The effect of the presence of electrolytes, *pH*, and temperature on the behaviour of various dyes towards cotton is illustrated by several graphs. Wool/cotton or wool/viscose union dyeing in a single acid bath, without endangering the cellulosic material, is made possible by selecting appropriate acid dyes and cotton colours, due regard being paid to the behaviour indicated by the graphs. Either acetic-formic or formic-sulphuric acid baths may be used, and operating conditions are given. C—4I.

**Azo Dyes and Their Intermediates. Parts I, II, and IV.** Tetsunosuke Nishi and Hisao Toki. *J. Soc. Chem. Ind. Japan*, 1942, **45**, pp. 37-38; 38-39; 1943, **46**, p. 172 (in German) (through *Chem. Abstr.*, 1950, **44**, No. 22, p. 11099[g]). (I) Various methods and precautions are given for the preparation of *m*-nitrobenzoic acid. (II) The preparation, and dyeing and fastness properties of three substantive azo dyes (prepared from *o*-, *m*-, and *p*-nitrobenzoic acid) are described. (III) The properties of azo dyes prepared from 1:5-naphthylenediamine and J acid have been determined. C—4I.

**Better Levelness on Nylon.** W. H. Sharkey. *Dyer*, 1951, **105**, No. 3, pp. 185, 187, 188. Some factors which cause irregularities in the dyeing properties of nylon are briefly indicated. A patented method for producing level dyeings on nylon irrespective of small variations in its properties, is described. The chief feature of the procedure is that the dye concentration in the dye bath is not allowed to exceed 50 parts per million. The dye is supplied to the bath so that the rate of supply is approximately equal to the rate of take-up by the nylon. One way of achieving this is by first absorbing the dye on a medium such as wool and then heating the dyed medium and nylon fabric together in the dyebath. C—4I.

**Dyeworks Management: A Sound Basis for Costing.** J. R. Swithenbank. *Dyer*, 1951, **105**, No. 3, pp. 157-162. The steps to be taken in establishing a costing system in the dyeing and finishing industry are discussed in some detail C—4I.

**Dynel: Spinning, Knitting, and Dyeing.** ("Check These Pointers to Help You in Handling Dynel.") R. W. Gaines, A. L. Snyder, and T. A. Field. *Text. World*, 1950, **100**, No. 12, pp. 126-127, 137. Information is presented on the spinning, knitting, and dyeing of Dynel. C—4I.

**Fast-dyeing of Wool Mixture Fabrics with Indigosol Colours.** ("Das echte Färben von Halbwollgeweben mit Indigosolfarbstoffen.") Durand & Huguenin A.-G. *Text. Rdsch.*, 1951, **6**, No. 1, pp. 20-23. Single-bath dyeing of wool-cotton and wool-rayon mixtures with suitable combinations of dyestuffs to secure similar shades on both types of fibre is often accompanied by the disadvantage of poor fastness. Two-bath dyeing also has drawbacks such as lack of uniformity of shade, and effect of second dyeing on first. After surveying the development of indigosol dyeing, a new procedure is described, by means of which both types of fibre are dyed to the same shade with improved fastness. Two baths are employed: in the first, the indigosol is applied in aqueous solution to which ionising salts are gradually added; in the second, which contains acid, oxidising agent and a buffer, the dye on the fabric is developed at a certain temperature. This temperature determines the amount of dye absorbed by either type of fibre, the higher temperatures usually favouring higher absorption by wool. The method

offers a valuable control on the resulting shades. Several recipes indicating temperature for similar shade on wool and cotton (in equal proportions in the mixture) are given. C—41.

**Logwood and Its Application: Part III. Dyeing of Natural Silk.** O. Newsome. *Dyer*, 1951, 105, No. 3, pp. 162-164. An account is given of the method for dyeing logwood blacks on silk. (For Part I, of this series, see *J. Textile Institute*, 1951, 42, A220.) C—41.

**Metallic Salt Complexes of Azoic Colours.** ("Sels métalliques complexes de colorants azoïques.") R. Specklin. *Teintex*, 1950, 15, No. 10, pp. 451-469 (10 pages). This detailed account of the chemistry of the metallic complexes of azo dyes, including those of copper, chromium, cobalt, and nickel, includes a survey of the development of these complexes and modern commercial products. 62 references are given. C—41.

**New Dyestuffs.** Imperial Chemical Industries, Ltd. *Text. Wkly*, 1951, 47, No. 1195, p. 394. Brief details are given of the following new dyes introduced by I.C.I.: Brentogen Bordeaux RS, Chromazol Red GS, Solochromate Fast Red 3GS, Durazol Blue 8RS, Chromazol Green 4G, Chromazol Blue GS, and Chromazol Blue 5GS. C—41.

**Nylon: Processing; Parts 10, 11, 12.** British Nylon Spinners Ltd. *Text. Merc.*, 1951, 124, No. 3226, pp. 188, 190, 192; No. 3228, pp. 285, 287; No. 3229, pp. 334-335. These further extracts from the Nylon Service Manual deal with (*a*) the bleaching and dyeing of nylon hosiery, (*b*) the dyeing of nylon woven fabrics, and (*c*) the dyeing of wool/nylon materials to solid shades. C—41.

**Orange GG.** Jiří Rais. *Chem. Obzor*, 1950, 25, pp. 97-101 (through *Chem. Abstr.*, 1950, 44, No. 22, p. 11099°). In producing Orange GG it is possible to increase the yield by the addition of a little di-sodium salt of the R-acid into the passive component. The exhaustion of the baths after dyeing, and the extinction curves in relation to the content of the salt of R-acid are discussed. The properties of the pure salts of G- and R-acids are described. C—41.

**Piece Dyeing Machinery.** Longclose Engineering Co., Ltd. *Text. Wkly*, 1951, 47, No. 1195, pp. 390, 392. A description is given (with illustration) of a Callebaut-De Blicquy enclosed stainless-steel piece-dyeing machine of improved construction. C—41.

**Steam-padding Vat Dyes.** ("Verven van Kuipkleurstoffen op 'Foulard'.") "Technicus." *Textielwezen*, 1951, 7, No. 1, pp. 15-18. The application is described of vat dyes by existing processes, namely, (1) the normal padding process, that is, by direct impregnation of the fabric through immersion in a solution of the reduced dvestuff; (2) the pigment-padding process, in which the dyestuff is applied as a fine dispersion before reduction; and (3) the pigment-Rongalite-steam process, which is used in printing where reduction and fixation *in situ* is necessary. After defining some limitations and difficulties encountered in these methods, the newly developed du Pont steam-padding process is discussed in great detail. This method depends on the fact that the vat-dyestuff in the fibre is converted to the leuco compound within a few seconds, in the presence of hydrosulphite dissolved in caustic soda solution, when treated with steam at 100° C. The reduced dyestuff requires only a very short time to disperse evenly through the material. The process is so varied that it can be regarded as "continuous". C—41.

**Dyeing in Pressure Circulating Machines.** J. Henderson. *The Cobbler*, 1950-51, 3, 15-27. The advantages and disadvantages of dyeing in pressure circulating machines are stated. The working of open and closed machines, in which the liquor is forced directly on to the packages by the pump, is described. Details are given of types of package in which cellulose fibres, acetate rayon, nylon, and Terylene in yarn form, can be dyed. Methods of applying direct, vat, Soledon, sulphur, insoluble azo, acetate rayon, and acid and chrome dyes are described. W—41.

**Stripping of Wool Dyes with Protection against Chemical Damage.** E. A. Leonard and L. Beck. *Amer. Dyest. Rep.*, 1951, 40, P178-182. A commercial method for stripping dyes from wool without chemical degradation is described. The method, which is that of Harris and Brown (*J. Textile Institute*, 1947, 38, A468) consists of splitting the disulphide linkages and rebuilding them with

ethylene dibromide. The effectiveness of this protective modification is shown by data on wool fibre strength, alkali solubility, and an abrasion test on pile floor coverings. Application of the recording spectrophotometer to quantitative measurement of dye removal is discussed and illustrated. Variations of the protective stripping process are described relative to their effectiveness on particular dyes. Details are given of the cost of materials, processing time, equipment changes, and the toxicity of ethylene dibromide. W—4I.

**Dyeing: A "Problem" Navy Blue.** A. Carpenter. *Text. Rec.*, 1951, 68, No. 816, 109-111. Problems connected with the use of Sulphon Cyanine for wool dyeing are discussed, and methods suggested for its successful use. Good initial levelling is essential to prevent deterioration of the shade as dyeing proceeds, due to decomposition of the dye. W—4I.

**Hosiery: Dyeing.** J. A. Potter. ("Dyeing for the hosiery industry.") *Hosiery Trade J.*, 1951, 58, (688), 40-2. Report of an address to the West Riding Section of the Society of Dyers and Colourists. Discusses some of the problems arising in the dyeing of hose, half-hose, lingerie, and sweaters. The use of the newer synthetic fibres is briefly referred to. H—4I.

(J)—PRINTING

**Kleinewefers Printing Machine.** Joh. Kleinewefers. *Text. Mfr*, 1951, 77, January, 25-26. Some of the features of the new Kleinewefers roller printing machine are described and illustrated. C—4J.

(K)—FINISHING

**Hosiery Finishing.** Anon. *Amer. Wool Cotton Reptr.*, 1950, 64, August 24, pp. 55, 57 (through *Text. Tech. Digest*, 1950, 7, No. 10, p. 820). The importance of each operation in hosiery finishing is stressed. The dyeing, bleaching, boarding, "mating" and inspecting, bonding, labelling, and boxing of hosiery are discussed. C—4K.

**Finishing Machinery.** Anon. *Amer. Wool Cotton Reptr.*, 1950, 64, August 24, pp. 11-12 (through *Text. Tech. Digest*, 1950, 7, No. 10, p. 820). A review is given of many new developments and improvements in bleaching, dyeing, and finishing machinery. C—4K.

**Continuous Shrinkage Range.** James Hunter Machine Co. *Amer. Dyest. Rep.*, 1951, 40, 207. The Unishrink continuous shrinking range has a horizontal conveyor which carries the cloth in a completely tensionless position. New features of the machine include the following: guides for automatically guiding the cloth to the wetting-out tank, an expander for removing all wrinkles and double edges before the cloth enters the squeeze rollers; a rotary brush for clearing the top roller of flock; a compensating gate for controlling the cloth tension between wetting-out tank, squeeze rollers and dryer. Two types of finish, either cold water or resin, can be run at the same time without exhausting the bath. W—4K.

**Shrinkage of Woollen and Worsted Materials.** L. H. Turl. *Canad. Text. J.*, 1951, 68, No. 4, 56-64. Factors affecting relaxation and felting shrinkage are discussed in relation to the findings of various investigators. The stability of non-felting wool fabrics is discussed, with special reference to the results of relaxation studies obtained with different types of equipment after an unshrinkable finish. W—4K.

**Wool Industry: New Scientific Progress.** "Quelques nouveaux progrès scientifiques de l'industrie lainiere.") E.G. Carter. *Congrès de technique textile, Brussels*, 16-17 October, 1950, pp. 95-104. [Bound volume of papers.] Subjects discussed are: steely wool (its causes, characteristics, and nutritional methods for overcoming this condition); the American "Textralising" process for crimping wool; the felting of wool (the theory of its mechanism, and methods for increasing feltability); the Lanfix method (British Cotton and Wool Dyers' Association) for conferring shrink-resistance by decreasing feltability. W—4K.

**Finishing Wool Fabrics: Modern Technical Contributions.** ("Les apports techniques modernes a l'achevement des tissus de laine.") F. Tiquet. *Congrès*

*de technique textile, Brussels*, 16-17 October, 1950, pp. 196-203. [Bound volume of papers.] Results of the application of research methods to wool processing are surveyed. W—4K.

**Finishing: Review.** W. B. Gordon. ("Fabric construction in relation to textile finishing.") *Hosiery Trade J.*, 1951, **58**, (688), 26. Report of address to the Colne Textile Society. Discusses the essential features of wet processing of flat fabrics, crêpe fabrics and rayon staple fabrics. H—4K.

(L)—PROOFING

**Mothproofing of Wool.** J. Barritt. *Congrès de technique textile, Brussels*, 16-17 October, 1950, pp. 217-223. [Bound volume of papers.] The general requirements of a mothproofing agent are stated. The historical development of mothproofing agents is surveyed. Experiments made at the Wool Industries Research Association on testing the efficacy of various mothproofing agents on blankets, worsted fabrics and knitted fabrics, are described; special reference is made to larval testing. W—4L.

**Mitin: Action on the Larvæ of the Clothes Moth.** ("Untersuchungen über die Wirkung des Mitin auf die Raupen der Kleidermotte (*Tineola biselliella*)"). R. Lotmar. *Melliand Textilber.*, 1951, **32**, 68-70. Moth larvæ placed on Mitin-treated wool die much more quickly than fasting animals. A 10 per cent. concentration of Mitin causes death sooner than a 3 per cent. concentration. A specific toxic action is therefore to be attributed to Mitin. Both Mitin-treated and fasting animals tend to cast their skin prematurely. Compared with fasting larvæ (average size), most Mitin-treated animals, however, die before casting the old skin. This further supports the view that death from Mitin is to be ascribed to a toxic effect and not to ordinary starvation. Mitin-treated wool is eaten by moth larvæ, but only for a comparatively short time; there is decomposition of the keratin in the initial stages, but later semi-digested and undigested Mitin-treated wool fibres are found in the intestinal canal and in the excrement. Damage by moth larvæ to Mitin-treated wool is insignificant and in practice can be disregarded. C—4L.

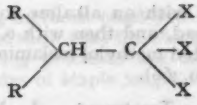
**Adhesion of Rubber and Textiles.** E. M. Borroff, R. S. Khot, and W. C. Wake. *Ind. Engng Chem.*, 1951, **43**, 439-442. Interim report of programme of research on adhesion. A convenient means of obtaining good adhesion of rubber to fabric is suggested by the work. This involves the construction of the textile with a small percentage of spun staple, the fibres of which have high individual tensile strength. A continuous filament warp and a suitable arrangement of picks of continuous filament and spun staple yarns will give the required adhesion. The use of sateen weaves with spun staple on the weft face, which has also to be proofed, enables fabrics with good adhesion characteristics to have also the sheen characteristic of continuous filament materials. La—4L.

PATENTS

**Wool Dyeing Process.** D. R. Lemin, I. D. Rattee and Imperial Chemical Industries Ltd. B.P.645,594 of 1/11/1950. Level shades are produced on wool by applying acid milling dyes in a neutral dyebath in the presence of a neutral inorganic salt and a surface-active agent of the class which comprises the neutral salts of aromatic sulphonic acids, *e.g.*, naphthol or naphthalene sulphonic acids. Examples relate to the dyeing of loose wool and of wool yarn. W.

**Animal Fibres: Straightening, (particularly in the form of Furs and Pile Fabrics).** Lister & Co. Ltd. and G. B. E. Schueler. B.P.648,854 of 17/1/1951. A synthetic resin, which may be thermo-hardening, thermo-setting, semi-polymerised or semi-condensed, is applied to wool pile fabric, which is then vigorously brushed at 100°-160° C. During brushing the fibres are straightened and the resin is cured. The fibres may have a preliminary softening treatment. Hot roller treatment before, or less preferably, after the brushing, further straightens and polishes the fibres. Treated fibres are softened and made glossy by washing with hot water. In an example, the fibres of treated "fur fabric" are also mothproof. W.

**Textiles: Treatment to Protect from Attack by Insects.** The Geigy Co. Ltd., H. Taylor and R. Williamson. B.P.650,403 of 21/2/1951. Textile materials can be effectively impregnated with insecticides of general formula



(X=chlorine or bromine, and R=a benzene ring nuclearly substituted in the *para* position by a halogen, alkyl or alkoxy group), applied as cool aqueous dispersions. The disperse phase contains the insecticide and is positively charged by means of casein or blood albumin associated with sufficient organic acid to bring the *pH* of the dispersion below the isoelectric point of the casein or blood albumin. The preferred insecticide is DDT. The treatment is suitable for undyed and dyed textiles. W.

**Rags: Treatment.** Petmar Industries Ltd., L. Marbach and K. Petrie. B.P. 650,996 or 7/3/1951. Wool rags are prepared for grinding by treatment first with an oxidising agent, and then immediately with an acidic or an acidified reducing agent; they are finally treated in alkaline and lubricating media to bring the treated wool fibre surface into a slippery condition and prevent redeposition of dissolved wool on the fibre surface after drying. The rags can be dyed, mothproofed, or subjected to similar chemical treatments before the final stage of the process. W.

**Drying and Curing a Resin-impregnated Endless Textile Strip.** C. B. Albright (to The Orr Felt & Blanket Co.). U.S.P.2,512,128 of 20/6/1950. A method and apparatus are described for drying and curing resins on felts, or endless wool belts, especially for use on papermaking machines. The process is continuous, the belt being carried forward by intermittent stages. W.

**Wool: Treatment to Increase Resistance to Decomposition by Heat.** C. R. Barnes (to Albany Felt Co.). U.S.P.2,515,181 of 18/7/1950. The resistance of wool to wet and dry heat is increased by treatment in water with metallothiocyanate complex ions, preferably the symmetrical zinc thiocyanate complex ion. X-ray diffraction patterns indicate that the chemicals are added to the amino groups rather than that they break the disulphide bonds. W.

**Wool: Resistance to Felting.** F. R. Haigh and E. C. Koerner (to Botany Worsted Mills). U.S.P.2,516,055 of 18/7/1950. Wool is made resistant to felting by partial wet chlorination, followed by padding with a resin. Handle and colour are unaffected. Examples describe the treatment of flannel, crêpe and challis. W.

**Wool: Treatment to Increase Harshness and Decrease Lustre.** S. E. Swanson (to Bigelow-Sanford Carpet Co. Inc.). U.S.P.2,534,314 to 2,534,319, and 2,535,022, all of 19/12/1950. B.A.-type wool, defined as that from the Lincoln-type sheep of the Argentine and New Zealand, is made suitable for manufacture into carpets by boiling in various solutions. The solutions contain the following: a mixture of approximately equal amounts of aluminium chloride and sodium thiosulphate (2,534,314); aluminium sulphate, sodium aluminium sulphate, or ammonium aluminium sulphate (2,534,315); barium oxide or barium hydroxide, followed by treatment with sulphuric acid (2,534,316); titanyl sulphate (2,534,317); titanium dioxide (2,534,318); hydrated zirconia (2,534,319); sodium zirconyl sulphate (2,535,022). W.

**Fibrous Textile Materials: Manufacture of Sheets or Webs.** F. Happey and J. H. Grimes (to Courtaulds Ltd.). U.S.P.2,535,919 of 25/12/1950. Non-woven fabric is composed of layers of fibres the major portion of which consists of incompletely-acetylated cellulose fibres, *e.g.*, ramie fibres which have been acetylated to an acetyl content of about 30 per cent., corresponding to acetylation of the amorphous cellulose without significant acetylation of the highly crystalline cellulose. The fibres are bonded together by treatment with a solvent, *e.g.*, methylene chloride, which causes the cellulose triacetate to act as an adhesive. W.

**Wool-containing Textile Materials: Treatment.** L. A. Fluck, jun., J. L. Lynn, and E. A. Schuman (to American Cyanamid Co.). U.S.P.2,539,365/6 of 23/1/1951. A wool-containing textile material is made resistant to felting and

shrinking by treatment first with an alkaline solution, preferably an aqueous solution of a peroxy compound, and then with a heat-curable aminoplast, *e.g.*, a methylated or other alkylated methylol melamine, which may be non-cationic, (2,539,365), or cationic, (2,539,366). W.

**Casein Threads, Fibres, etc.: Treatment.** L. Maaskant (to American Enka Corporation). U.S.P.2,539,958 of 30/1/1951. Pre-hardened casein fibres or threads are made resistant to acid by soaking in an aqueous solution containing pre-condensation products of resorcinol, or a substituted resorcinol, and aldehydes, preferably formaldehyde. The flexibility of the fibre or thread is retained. W.

## 5—ANALYSIS, TESTING, GRADING AND DEFECTS

### (A)—Fibres

**Deposition of Silicic Acid in Cotton Fibres.** H. W. Kohlschütter, H. Mattner, and K. Beyersdorfer. *Z. anorg. Chem.*, 1950, **262**, pp. 122-128 (through *Chem. Abstr.*, 1950, 44, No. 22, p. 11104[i]). Silicic acid has been deposited on cotton fibres by treating dried cotton linters with silicon tetrachloride followed by hydrolysis of this compound *in situ*. After burning out the cellulose, fragile, white silica pseudomorphs of the original fibres were obtained. C—5A.

**Dry Tensile Strength and Elongation Tests on Glass Filaments.** P. A. Koch and G. Satlow. *Glastech. Ber.*, 1949, **22**, pp. 103-7 (through *Chem. Abstr.*, 1950, 44, No. 21, 10,277[e]). The "Deforson" apparatus of Keyl is claimed to be particularly suited to the measurement of the tensile strength of glass filaments. Tests with German textile fibres showed that the tensile breaking length is related to the production method; fibres produced by nozzle blowing have a breaking length of 40 Km. (100 kg./sq.mm.), those from rod-spinning machines a breaking length of 60-65 Km. (150 to 160 kg./sq.mm.) The elongation of blown fibres is 2·1 to 2·3 per cent., that of rod-spun fibres 3·2 to 3·7 per cent. C—5A.

**Limitations of the Arealometer Method for the Measurement of Fibre Diameters.** J. M. Dalla Valle, C. Orr, and R. R. Cornwall. *Text. Res. J.*, 1950, **20**, No. 10, pp. 676-682. Fibres of known surface area, such as nylon, have been examined in order to determine the effect of porosity on the area as measured by means of the arealometer (or permeameter). The surface area, and hence the diameter, of a variety of fibres (two types of nylon, cotton, and ramie) calculated from arealometer data using the Lea and Nurse equation,* decrease with decreasing sample-bed porosity. Previously suggested correlations for such data are of little value for fibrous materials, and a new correlation is given which indicates that a definite porosity function is associated with each material. It is concluded that the arealometer method is capable of yielding consistent results for some materials if care is taken to assure proper test conditions, but it is often difficult or even impossible to determine such conditions. (*See *J. Textile Institute*, 1939, **30**, A811.) C—5A.

**Quantitative Analysis of Asbestos, Glass Fibre, and Organic Fibre Textiles.** G. Satlow. *Glastech. Ber.*, 1949, **22**, pp. 121-7 (through *Chem. Abstr.*, 1950, 44, No. 21, p.10277[i]). This method is suggested as an improvement on the difficult and time-consuming microscopic analysis, which gives only an approximate percentage of the textile ingredients. It is based on the determination of the ignition loss of serpentine asbestos (chrysotile), accepted to average 14·5 per cent. Dehydration at 900° C. for one hour enables a differentiation of asbestos and glass fibres to be made. If organic fibres are interwoven, this dehydration must be preceded by a calcination at 500° C. for one hour to destroy them. The reliability of this simple method is demonstrated with several "synthetic" specimens and industrial yarns. C—5A.

**The Effect of Manufacturing Processes on the Fibre Length Distribution and Staple Length of Raw Cotton Used in Grey Yarn and Grey Cloth.** John F. Williams, George Vlases, and Harold Fielding. *Text. Res. J.*, 1950, **20**, No. 10, pp. 719-726. The fibre arrays of 50 samples of raw cotton have been compared with those of the fibres from 65 corresponding manufactures of grey

cloth and yarn. The sampling methods employed are described, and results are presented and discussed. These show that the changes in fibre length distribution produced by the manufacturing processes are not of sufficient magnitude to affect the reliability of estimates of staple length. C—5A.

**Synthetic Fibres: Properties.** ("Quality Control and the New Fibres—Part 3.") Ogden Clegg. *Text. Merc.*, 1951, 124, No. 3227, pp. 231-232, 252. Some properties of man-made fibres (resistance to light and creasing, inflammability, and feltability) are considered to illustrate their potentialities in the design of new fabrics. Testing is also mentioned. (For part 2, see *J. Textile Institute*, 1951, 42, A228.) C—5A.

**The Specific Surface of Fibres—its Measurement and Application.** S. G. Mason. *Tappi*, 1950, 33, pp. 403-409; *Pulp Paper Mag. Can.*, 1950, 51, No. 9, pp. 109-115 (through *Chem. Abstr.*, 1950, 44, No. 22, p. 10458e). This is a review with 23 references. C—5A.

**Fibre Diameter: Measurement.** P. Larose. *J. Textile Institute*, 1951, 42, P104-106. Wool fibres are cut to 0·1 mm. lengths in a sectioning device. The section is placed on a microscope slide which is itself placed on a glass plate to which two brass strips are cemented. The strips are used as terminals, and are connected to a transformer. The slide is placed under a low power microscope, and the fibres floated in amyl acetate. When the electric field is applied, the fibres align themselves in the direction of the field. When the acetate has evaporated, the fibres can be covered with cedar oil or glycerine and a cover glass, thus retaining their orientation in the same direction. W—5A.

**Animal Fibres: Detection of Modification. I.** H. M. Burte. *Text. Res. J.*, 1951, 21, 63-66. To reduce fibre to fibre variation in single fibre testing, the use of the ratio of the slope of the load-extension curve in water to that in air is proposed. This ratio is claimed to be independent of fibre cross-sectional area. W—5A.

**Wool: The Effect of Non-circular Cross-section on Fibre Diameter Measurement by the Profile Method.** S. L. Anderson and R. C. Palmer. *J. Textile Institute*, 1951, 42, P114-116. The length of specimen cut is shown to influence the results obtained with this method on the projection microscope, short specimens of non-circular fibres tending to lie with their major axis parallel to the slide. For wool fibres a minimum length of 800 microns is recommended to avoid this. W—5A.

(B)—YARNS

**Coefficient of Friction Between Rayon and Other Substances: Application in Tension Control Study.** ("Le frottement des fils de rayonne sur diverses matières et entre eux.") Ettore Viviani and Luciano Graziano. *Rayonne*, 1951, 7, No. 1, pp. 17-23. In the production of rayon yarn and fabrics it is important to be able to confine the tension exerted on the yarn to within limits. In order to do this it is essential that a close study be made of the friction occurring either between two or more rayon fibres or filaments, or between rayon and any other substance with which it is likely to come in contact during processing. Accurate determination of such friction, whatever the direction of motion of the rayon with respect to the material with which it is in contact, is imperative. This, the first of a series of articles on the subject, is devoted to a description of methods to be employed in these studies, and to certain diagrams which are intended to illustrate argument which will be developed in more detail later on. C—5B.

**Mechanics of Elastic Performance of Textile Materials: Part VI: Influence of Yarn Twist on Modulus of Elasticity.** Milton M. Platt. *Text. Res. J.*, 1950, 20, No. 10, pp. 665-667. Previously derived formulæ and methods* are applied to data on the modulus of elasticity of yarns in relation to twist. Increase in yarn twist is accompanied by a decrease in modulus. It is shown that the given relation is sufficiently accurate to enable the modulus to be predicted from yarn twist. (*See *J. Textile Institute*, 1950, 41, A308, 1951, 42, A105.) C—5B.

**Statistical Quality Control at Work in a Cotton Mill.** E. S. Rudnick. *Text. Res. J.*, 1950, **20**, No. 10, pp. 727-734. The establishment of a quality control system is discussed. Steps in the procedure which are considered, include preliminary investigations, general analyses of variance, collection of populations of data, determination of sample size, setting of control limits, use of control charts, and various statistical comparisons. The steps used for a three-factor analysis of variance are given in detail. **C—5B.**

**Yarn Properties: Determination.** ("Neuartige Untersuchungsmethoden zur Feststellung der Garneigenschaften.") H. Stein. *Melliand Textilber.*, 1951, **32**, 80. The "Freha" apparatus, fitted with an electric measuring device, is recommended for testing yarn levelness. **W—5B.**

(C)—FABRICS

**Causes of "Bright Threads."** ("Différentes causes de fils brillants.") M. Weiss. *Rayonne*, 1951, **7**, No. 1, pp. 24-32. Several ways in which excessive tension may be exerted on a rayon yarn are described. The increased brightness that results does not become apparent until after weaving, when the overextended yarn can no longer bend as readily, so that the light reflection is more regular as compared with yarns which have not been overstretched. Ways of determining the original causes of brightness in warp or in weft are described at some length. **C—5C.**

**Cellulose-Water Relations: Abstract Bibliography.** Mary L. Rollins, Hazel H. Fort and Dorothy B. Skau. *United States Department of Agriculture, Library List* No. 44, March, 1949, 63 pp. This bibliography has special reference to swelling of cotton, and to its utilisation in water-resistant fabrics. There are 523 selected references on the swelling of cotton and other fibres, and further references on methods of measuring swelling, the effect on absorption of atmosphere humidity, swelling produced, mechanism of absorption by cellulose, application of fibre swelling in fabrics, and methods of measuring water repellency. **C—5C.**

**Fastness of Dyeings and Prints to Chlorine.** ("Bestimmung der Chlorechtheit von Färbungen und Drucken.") Swiss Society for Testing Technical Materials. *Textil-Rundschau*, 1951, **6**, No. 1, p. 27. The resistance to bleaching by chlorine baths at concentrations normally encountered in the textile industry and in household laundering, is determined for dyeings and prints on natural and regenerated celluloses and acetate rayon, by the Swiss standard method of test SMVT 25/A2557. **C—5C.**

**Fastness of Dyeings and Prints to Cross-dyeing in Neutral Acid and Chrome Baths.** ("Bestimmung der neutralen, sauren und Chrom-Überfärbeechtheit von Färbungen und Drucken.") Swiss Society for Testing Technical Materials. *Text.-Rundschau*, 1951, **6**, No. 1, p. 28. The Swiss standard method of test, SVMT 25/2576, is designed to determine the resistance of dyeings and prints to cross dyeing in neutral, acid and chrome baths. All types of fibres are included. **C—5C.**

**Fastness of Dyeings and Prints to Peroxide Bleaching.** ("Bestimmung der Peroxyd-Bleichechtheit von Färbungen und Drucken.") Swiss Society for Testing Technical Materials. *Text.-Rdsch.*, 1951, **6**, No. 1, p.26. The Swiss standard method of test, SVMT 25/A2554, has been designed to determine the fastness of dyeings and prints on all fibres, with the exception of polyamide fibres, to peroxide bleaching baths of the usual concentrations found in textile practice. **C—5C.**

**Perspiration Fastness of Dyeings and Prints.** ("Prufung der Schweissechtheit von Färbungen und Drucken.") Swiss Society for Testing Technical Materials. *Text.-Rdsch.*, 1951, **6**, No. 1, p. 25. A standard method of test, SVMT 25/A2524, for determining the perspiration fastness of dyeings and prints on all types of fibres at all stages of production, is given. It is pointed out, that, owing to the varied nature of human perspiration, the prescribed test can only be expected to reproduce the conditions applicable to the majority of cases. **C—5C.**

**Thickness Gauging by Radiation Absorption Methods.** C. W. Clapp and S. Bernstein. *Gen. Electr. Rev.*, 1950, 53, No. 11, pp. 39-42. Detectors and gauging systems, for X-ray and beta-ray thickness-gauging equipment, are described and compared. C—5C.

**Wool: Determination of Attack by Alkalis.** ("Détermination de l'attaque de la laine par les alcalis.") M. Binder. *Teintex*, 1951, 16, 13-31, 55-61. Wool gabardine, treated with various concentrations of caustic soda and then brought to *pH* 5, was subjected to chemical and physical tests for degradation due to alkali. The results of the tests are shown graphically. It is concluded that no test shows all phases of alkali attack, and that such a test would be unnecessary, provided that the limitations of existing tests are recognised. W—5C.

(D)—Other Materials

**Determining Consistency of Pastes.** Jean Vandooren. *Congr. tech. intern. ind. peintures inds. assoc.*, 1947, 1, 178-81 (through *Chem. Abstr.*, 1950, 44, No. 22, 11095[h]). A modified putty consistometer is described which is recommended for cellulosic cements and coatings. C—5D.

**The Whitin Bobbin Tester.** Whitin Machine Works. *Whitin Rev.*, 1950, 17, No. 5, pp. 9-10. A description is given, with an illustration, of an instrument for testing the eccentricity ("truth or balance") of bobbins. C—5D.

**Weft Pirns: New British Standard Specification.** British Standards Institution. *Text. Mfr*, 1951, 77, January, 10. A table is presented (from British Standard 1675, "Weft Pirns for Direct Spinning of Cotton"), giving the new standardised dimensions of weft pirns. C—5D.

**Wool Oiling: Anomalies in Testing the *pH* of Oleic Acid Emulsions.** ("Anomalies dans la Mesure du *pH* des Emulsions d'Acide Oléique pour Ensimages.") M. Ringeissen. *Bull. Inst. Text. France*, 1951, No. 23, 25-28. L'Institut Textile de France has set up a sub-committee to study methods of testing oils for wool processing. Different laboratories have found that a neutral oleic acid incorporating a neutral non-ionic emulsifying agent has a *pH* of about 5 in water. The polar grouping of the fatty acid appears to be responsible for this low acidity. Both colorimetric and potentiometric methods of test give anomalous results, and efforts are being made to devise a reliable test for mineral acidity. W—5D.

## 7—LAUNDERING AND DRY-CLEANING

**Knitted Woollens: Effect of Construction on Laundering Shrinkage.** H. Bogaty, L. I. Weiner, A. M. Sookne and M. Harris. *Text. Res. J.*, 1951, 21, 102-109. Three groups of Australian wool top were subjected to alkaline wet chlorination at mild, optimum and severe levels, a fourth group being untreated. These four groups of top were chrome-dyed, spun into yarns with normal and higher than normal twists, machine-knitted into socks or tubing with various degrees of knitting stiffness, laundered, and tested for shrinkage. The results show the following: increase in knitting stiffness, and, to a much smaller extent, in yarn twist, improves laundering stability; increasing the density of the fabric by using a heavier yarn, or by knitting with more loops per inch, tends to produce a more shrink-resistant fabric; shrink-resistant treatment is the largest factor in lowering feltability, but should be combined with a sufficiently firm fabric construction; plying of yarns and type of spinning have little effect on feltability. W—7.

**High Viscosity Detergent Solutions.** H. L. Sanders and E. A. Knaggs. *Soap*, 1951, 27, (2), 41-43, 129, 131. Investigation of viscosity and the viscosity measurement of detergent solutions shows the possibility and advantage of thickening detergent solutions with certain high-viscosity detergents rather than gums. La—7.

**Automatic Controls.** J. Riley. *Power Laundry*, 1951, 84, 320-323. An article showing how automatic controls on washing machines increase efficiency, speed and economy. Their use in operations at a large laundry are described. La—7.

# 8—BUILDING AND ENGINEERING

## (A)—Construction and Maintenance of Buildings and Plant

**Bonding of Rubber to Metal.** C. J. Moss. *Brit. Plastics*, 1951, **24**, January, 22-26. A method of bonding rubber to metal, which has been developed from the "Redux" process of metal-metal bonding, is described. The rubber surface to be bonded is treated with concentrated acid and then coated with a liquid phenolic resin and polyvinyl formal powder. The rubber and metal surfaces are brought together under pressure and the resin adhesive cured at 140°-150° C. Some figures are presented to show the strength of such bonds. Developments of the process, such as the use of accelerators to enable lower bonding temperatures to be used, are indicated, and finally some examples of the applications of rubber-to-metal bonding are mentioned. C—**8A.**

**Electrically-Interlocked Guards on Machines.** W. Fordham Cooper. *Engineering*, 1951, **171**, No. 4437, pp. 171-173. This paper summarises the results of a study of the defects commonly found in attempts to lock guards on dangerous parts of machines by electrical means. C—**8A.**

**Noise in Textile Factories.** A. J. King. *Text. Merc.*, 1951, **124**, No. 3228, pp. 277, 279. The reduction of noise in textile factories by structural design of the buildings and by modification of machinery is briefly discussed. C—**8A.**

**Organisation for Maintenance of Buildings and Installations.** Robert Chalmers. *Engineer*, 1951, **191**, No. 4959, pp. 186-187. A system of organisation for the maintenance of buildings and installations is outlined. C—**8A.**

**Recent Developments in the Application of Elastomers in Chemical Engineering.** Anon. *Industr. Chem.*, 1951, **27**, January, pp. 28-32. Some applications of elastomers (such as rubber, ebonite, and polyvinyl chloride) as corrosion-resistant coatings are described, and several examples of tanks lined with these materials are illustrated. C—**8A.**

**Plastics in Chemical Plant.** J. A. Buck. *Mech. World*, 1951, **129**, 245-248. A comparative survey of new and established materials, methods and applications. Chief fields of application are: (*a*) for fabrication of structural units, as acid tanks, *etc.*, (*b*) for corrosion-resistant ducting and pipework, (*c*) for ion exchange processes such as water softening, (*d*) for gaskets, joints and internal linings for chemical equipment. La—**8A.**

## (C)—Steam Raising and Power Supply

**Boilers: Standardised Construction.** Carl E. Miller. *Mech. Engng*, 1951, **73**, No. 1, 9-13. The basic design principles of standardised boilers are discussed and are applied to three types of boiler. C—**8C.**

## (D)—Power Transmission

**Electric Drives in Cotton Mills.** F. W. Cox. *Text. Merc.*, 1951, **124**, No. 3227, pp. 235, 236, 239; No. 3228, pp. 281, 283; No. 3229, pp. 317, 318, 321. After a general consideration of electric motors, including motor characteristics, enclosure, power rating, speed, and transmission of drive, the application of individual electric drives to spinning and doubling, weaving shed, and finishing machinery is discussed. C—**8D.**

**Electrical Switch and Distribution Gear: Maintenance.** Anon. *Text. Mfr*, 1951, **77**, January, 19-21, 24. Some of the factors which control switch heating and cause damage to contacts on breaking circuit are discussed. Maintenance procedure is outlined, and control and protection circuits, and fuses are mentioned. C—**8D.**

## (F)—Lighting

**Fluorescent Lighting.** ("Een en ander over verlichting met fluorescentielampen.") Ir. M. Trioen. *Textielwezen*, 1951, **7**, No. 1, pp. 21-29 (5 pages). Various light sources, namely, gas-lamps (incandescent mantle), electric filament lamps, and fluorescent lamps are compared in respect of colour values, light/power efficiency, glare and length of life. The efficiency of the fluorescent lamp is then discussed in connection with ancillary apparatus, for example, transformers and condensers. C—**8F.**

(G)—HEATING, VENTILATION AND HUMIDIFICATION

**Air-conditioning in the Textile Industry.** Anon. *Fibres*, 1950, November, pp. 403-408 and 411. A new system, incorporating humidification, ventilation and heating, is described. Examples are quoted of increased efficiency in American mills as a result of installing air-conditioning. Mention is made of evaporative cooling, air cleaning by electrostatic precipitation systems, and the creation of an air barrier between operatives and fly. An electrostatic hygrometer is described which gives an indication of relative humidity without either calculations or temperature corrections, with an accuracy of ± per cent. C—**8G.**

**Air-conditioning in the Textile Industry.** ("Le conditionnement de l'air dans l'industrie textile.") P. Dusseiller. *Textielwezen*, 1951, 7, No. 1, pp. 40-48. Descriptions are given of Sulzer air-conditioning installations, and these are illustrated by photographs and a diagram. C—**8G.**

(H)—WATER PURIFICATION

**Water: Hardness Determination.** I. A. Heald, K. B. Coates and J. E. Edwards. *Industr. Chem.*, 1950, **26**, 428-434. An account of an investigation of recently published methods on the use of disodium dihydrogen ethylene diamine tetra-acetate for determining the calcium, magnesium and total hardness of water. Modifications recommended by the authors are described. La—**8H.**

## 9—SCIENCE

**Acid Hydrolysis of Lysozyme; Possibility of Avoiding Destruction of Tryptophane During the Hydrolysis.** Roger Monier and Marian Jutisz. *Bull. soc. chim. biol.*, 1950, **32**, pp. 228-33 (through *Chem. Abstr.*, 1950, 44, No. 21, p. 10,000[d]). A method of hydrolysing lysozyme without destroying tryptophane, using redistilled hydrochloric acid, is described. The extent to which tryptophane is destroyed under various other conditions of hydrolysis was studied. C—**9.**

**Composition of the Proteins (Fibroin and Sericin) of Silks of Various Origins.** Jean Roche, Raymond Michel and Mireille Bozzi-Tichadou. *Compt. rend. soc. biol.*, 1950, 144, pp. 100-102 (through *Chem. Abstr.*, 1950, 44, No. 21, *p.* 10,001[e]). *Bombyx mori* silk from Italy, France, Japan, Iran, and various parts of China showed small but significant differences in the glycine, alanine, serine and tyrosine contents of the fibroin, and in the glycine, serine and tyrosine contents of the sericin. The composition of the fibroin of Chinese tussah silk spun by *Phasolomia cynthia* is quite different from that of *Bombyx mori* silk. C—**9.**

**Crystallization of Malt β-Amylase.** Ed. H. Fischer, Kurt H. Meyer, G. Noelting and A. Piguet. *Arch. Biochem.*, 1950, **27**, 235-7 (through *Chem. Abstr.*, 1950, 44, No. 22, 10,744[i]). A method of purifying and crystallising malt β-amylase is described, and the characteristics of the crystallised enzyme are given. C—**9.**

**Enzyme Studies on Cereals: XIV. The Mechanism of the Decomposition of Starch by the Action of Rice Amylase.** Gohei Yamagishi. *J. Agr. Chem. Soc. Japan*, 1941, 17, pp. 883-893; *Bull. Agr. Chem. Soc. Japan*, 1941, 17, pp. 103-104 (in English) through *Chem. Abstr.*, 1950, 44, No. 22, 10,749[e]). Rice amylase is considered to consist of a liquefying enzyme, a dextrinising enzyme, and a saccharifying enzyme. The decomposition of starch by these three enzymes has been studied. The maltase extracted from rice has also been investigated. C—**9.**

**Oxidation of Certain Amino Acids and Proteins by Peroxidase and Hydrogen Peroxide.** I. W. Sizer. *Federation Proc.*, 1947, **6**, pp. 202-3; *Dairy Sci. Abstracts*, 1948, 9, No. 4, p. 327 (through *Chem. Abstr.*, 1950, 44, No. 21 p. 10,002[e]). The few amino acids and proteins which were oxidised by this method are listed. Closely similar effects on tyrosine and the susceptible proteins, suggest that it is the tyrosine part of the protein molecule which is oxidised. C—**9.**

**So-Called Amylosynthease.** Bunji Maruo and Tsuneo Kobayashi. *Chem. Researches* (Japan), 7; *Biochem. and Org. Chem.*, 1950, pp. 47-67 (English Summary, pp. 68-9) (through *Chem. Abstr.*, 1950, 44, No. 21, p. 10,017[b]). Differences are listed between glutinous rice starch, giving a red colour with iodine, and a com-

pound (giving a blue iodine colour) which results from conversion of the starch by Nishimura's amylosynthease prepared from autolysed yeast extract. It is concluded that the enzyme is not a synthease, but splits the chain of the starch like Meyer's alpha glucosidase, and should therefore be re-named "isoamylase". C—9.

**Synthesis of Starch-type Polysaccharides: Use of Mixtures of P- and Q-Enzymes.** ("The Enzymic Synthesis and Degradation of Starch: Part VIII.") S. A. Barker, E. J. Bourne, S. Peat, and I. A. Wilkinson. *J. Chem. Soc.*, 1950, November, 3022-3027. Different mixtures of stock samples of the P- and Q-enzymes of the potato have been used to catalyse the synthesis of starch-type polysaccharides from glucose-1-phosphate. The properties of the polysaccharide products have been shown to be related to the relative proportions of the two enzymes. When a large excess of P-enzyme was employed amylose was produced, and a large excess of Q-enzyme gave rise to amylopectin. The polysaccharides synthesised by other mixtures of P- and Q-enzymes appeared to have molecular structures intermediate between those of amylose and amylopectin. (Author's abstract.) (For Part VII, see *J. Textile Institute*, 1950, 41, A265.) C—9.

**Synthetic Polysaccharides: Methylation and End-group Assay.** ("The Enzymic Synthesis and Degradation of Starch. Part IX.") S. A. Barker, E. J. Bourne, and I. A. Wilkinson. *J. Chem. Soc.*, 1950, November, 3027-3030. Three of the synthetic polysaccharides mentioned in Part VIII* (one of amylose type and two of amylopectin type) have been submitted to methylation and end-group assay. Average chain lengths have been obtained and compared with those of potato amylose and amylopectin. The results confirm the conclusion set out in Part VIII, namely, that P- and Q-enzyme respectively synthesise amylose and amylopectin from glucose-1-phosphate. (*See previous abstract.) C—9.

**The Enzymic Hydrolysis of 1:3-Linked Polyglucosans.** Thomas Dillon and Proinnsias O'Colla. *Chem. & Ind.*, 1951, No. 6, p. 111. A laminarinase, similar to the one previously found in wheat*, has now been found in extracts of oats, barley, potato, and hyacinth bulbs. The enzymic hydrolysis of laminarin and yeast glucan has been studied. Laminarinase has been found to be more sensitive to heat than the common amylases. (*Dillon and O'Colla, *J. Textile Institute*, 1950, 41, A570.) C—9.

**A Constant-level, Boiling-water Bath.** Gail L. Miller. *J. Lab. Clin. Med.*, 1950, 36, pp. 325-328 (through *Chem. Abstr.*, 1950, 44, No. 22, p. 10,387[f]). A simple constant-level, boiling-water bath is described, including the construction of a test tube rack to fit the bath. C—9.

**Analysis of Penicillin Mixtures by Paper Chromatography of the Hydroxamic Acid Derivatives.** P. B. Baker, F. Dobson, and A. J. P. Martin. *Analyst*, 1950, 75, December, pp. 651-656. The method described is based on the fact that the relatively stable hydroxamic acid derivatives of the various penicillins show different partition coefficients between *iso*propyl ether-*iso*propyl alcohol and phthalate buffer, at a given *pH*, and can therefore be separated by paper chromatography. A novel apparatus for use with volatile solvents and heavily buffered papers, is described. (From author's summary.) C—9.

**A New Funnel Filter.** José Erdos. *Ciencia* (Mex.), 1950, 10, 102-3 (through *Chem. Abstr.*, 1950, 44, No. 22, 10381[d]). A stainless steel Büchner funnel, and auxiliary equipment, are described. C—9.

**Autolysis Products of Pepsin.** V. M. Ingram. *Nature*, 1951, 167, No. 4237, p. 83. The autolysis products of pepsin have been separated by two-dimensional paper chromatography. Among the 34 spots produced on the chromatogram many have been shown to be due to peptides and others have been identified as amino acids. The actual identities of some of the latter have been established. C—9.

**Constitution of Fehling's Solution.** ("Zur Kenntnis der Fehlingschen Lösung.") Paul Pfeiffer, Hans Simons and Erika Schmitz. *Z. anorg. Chem.*, 1948, 256, Nos. 5-6, pp. 318-342. An account is given of an investigation into the structure of cupri-tartrate complexes which include those compounds occurring in Fehling's solution. The study was extended to copper complexes with polyhydric alcohols,

and the simpler hydroxy alcohols. It was hoped, by this means, to establish the roles of the alcohol hydroxy groups, and of the carboxyl groups in the formation of the tartrate complexes. New constitutional formulæ were obtained for previously known and more recently discovered copper compounds. The spatial arrangement effected no difference on the tendency of the d- and meso-tartaric acids to form complexes. C—9.

**Deciphering Charred Documents.** J. A. Radley. *Analyst*, 1950, 75, November, p. 628. Some methods of deciphering documents damaged by fire are described and discussed. C—9.

**Determination of Acetyl in Pectin.** E. L. Pippen, R. M. McCready, and H. S. Owens. *Analyt. Chem.*, 1950, 22, No. 11, pp. 1457-1458. A procedure is described for the estimation of acetyl groups in pectin acetates. C—9.

**Determination of Arginine.** Tsutomu Sekine. *J. Japan Biochem. Soc.*, 1947, 19, pp. 63-65 (through *Chem. Abstr.*, 1950, 44, No. 22, p. 10,774[a]). An improved procedure for the determination of arginine by precipitation as arginine flaviniate is described. The separation of the flaviniate is improved by the addition of lead acetate to the solution in which the precipitation is carried out. C—9.

**Determination of Hydrogen, particularly in Magnesium.** ("Über eine Methode der Bestimmung von Wasserstoff, insbesondere in Magnesium.") Franz Sauerwald. *Z. anorg. Chem.*, 1948, 256, No. 4, pp. 217-225. The method and apparatus are described for the determination of hydrogen, particular attention being paid to hydrogen dissolved in magnesium. Purified chlorine is passed into the molten metal, and the hydrogen chloride generated is led, together with oxygen, over heated cupric oxide where the hydrogen chloride burns to form water, which is then weighed. Great care is necessary. C—9.

**Determination of Total Gossypol Pigments in Cottonseed Materials.** Walter A. Pons, Carroll L. Hoffpauir, and Robert T. O'Conner. *J. Amer. Oil Chemists' Soc.*, 1950, 27, 390-393 (through *Chem. Abstr.*, 1950, 44, No. 22, p. 11,128[b]). A method involving the use of a photoelectric colorimeter for the determination of total gossypol pigments in cottonseed materials, is described. C—9.

**Determination of Trivalent Iron.** S. A. Babushkin and M. L. Pogrebinskaya. *Zavodskaya Lab.*, 1948, 14, 1182-6 (through *Chem. Abstr.*, 1950, 44, No. 22, 10,580[b]). A method is described for the rapid direct determination of trivalent iron by titration with mercurous nitrate. C—9.

**Glycosides and Non-reducing Carbohydrate Derivatives: Detection in Paper Partition Chromatography.** J. G. Buchanan, C. A. Dekker, and A. G. Long. *J. Chem. Soc.*, 1950, November, 3162-3167. Methods of detecting non-reducing sugar derivatives and 1:2-glycols on paper chromatograms are described. They depend on the specific reactions of these substances with sodium metaperiodate or lead tetra-acetate. C—9.

**History of Chromatography.** J. Farradane. *Nature*, 1951, 167, No. 4238, p. 120. In reply to a communication by Weil and Williams* on the early history of chromatography, the present writer puts forward the claim that Goppelsroeder (1861) was the real initiator of chromatographic analysis, and that credit must go to Reed (1893) for the first published work on columns. (See *J. Textile Institute*, 1951, 42, A236.) C—9.

**Partition Chromatography and Countercurrent Distribution.** Lyman C. Craig. *Analyt. Chem.*, 1950, 22, No. 11, pp. 1346-1352. In order to obtain a clearer understanding of the mechanism of partition chromatography, a study has been made of countercurrent distribution. An automatic apparatus consisting of 220 glass cells has been constructed, by means of which the stepwise equilibrium procedure has been carried to several thousand actual stages. A mathematical expression of the results is developed. From the information obtained with the stepwise process, the nature of partition chromatography is briefly discussed. C—9.

**Reversed-Phase Partition Chromatography.** M. W. Partridge and J. Chilton. *Nature*, 1951, **167**, No. 4237, pp. 79-80. A method for preparing reversed-phase chromatography columns is described. These columns consist of powdered glass on which the stationary phase (chloroform- or benzene-water) is distributed. C—9.

**Standardisation of Volumetric Solutions.** Analytical Chemists' Committee of Imperial Chemical Industries Ltd. *Analyst*, 1950, **75**, November, pp. 567-632. A detailed description is given of methods employed by Imperial Chemical Industries to standardise volumetric solutions. The basic principle is the use of a single ultimate standard of reference (pure electrolytic silver) upon which the titre of all the principal laboratory standard solutions is based. Working standards (iodine, sodium carbonate and sodium chloride) are used as intermediaries between the ultimate standard and the volumetric solutions, but where these solutions are not directly referable to the working standards, reference is made through secondary working standards (arsenious oxide and potassium dichromate). A diagrammatic outline of the scheme is given. C—9.

**The Colorimetric Determination of Trace Elements.** A. G. Jones. *Industr. Chem.*, 1951, **27**, January, pp. 13-21. General precautions to be taken in the determination of trace elements are briefly discussed. The colorimetric method of analysis is considered in some detail with respect to (i) the production of the characteristic colour, and (ii) visual methods of measuring colour intensity. The laws of light absorption and their application to colorimetric analysis are outlined, and mention is also made of the definitions of some terms and symbols. Some photoelectric light absorption instruments (both absorptiometers and spectrophotometers) are described, and finally sources of error in colorimetric work are briefly mentioned. Twenty-four references are given. C—9.

**The Iodoform Reaction.** K. J. Morgan, J. Bardwell, and C. F. Cullis. *J. Chem. Soc.*, 1950, November, 3190-3195. The mechanism of the iodoform reaction is discussed. Means by which sources of error may be minimised have been examined, and the optimum conditions for the use of the reaction in quantitative analysis determined. C—9.

**The Use of Polarographic Methods for the Analysis of Fine Chemicals.** G. H. Osborn. *Analyst*, 1950, **75**, December, pp. 671-679. The function of polarographic methods in a laboratory dealing with the analysis of fine chemicals is discussed at length, and methods in present use are outlined. Detailed procedures are given for new methods. There are 35 references to the literature. C—9.

**Viscometric Titration.** S. J. Green and A. Draycott. *Nature*, 1951, **167**, No. 4238, p. 119. The method of viscometric titration, in which the fall in the viscosity of a solution is followed as a precipitant is added, has been extended to solutions containing several solutes. Titration curves are given for a mixture of $\alpha$- and $\beta$-Schardringer dextrins and sucrose in solution. C—9.

**Corrosion of Iron: Inhibition by Sodium Hydroxide Solution: Mechanism.** J. E. O. Mayne, J. W. Menter, and M. J. Pryor. *J. Chem. Soc.*, 1950, November, 3229-3236. An investigation has been carried out in order to obtain further information regarding the part played by dissolved oxygen during the inhibition of the corrosion of iron by sodium hydroxide solution. When iron, freed from any oxide film, is immersed in 0·1 N-sodium hydroxide solution containing dissolved oxygen, it becomes covered with a thin film of $\gamma$-ferric oxide. It is suggested that this film is responsible for passivity. A de-aerated solution of 0·1 N-sodium hydroxide attacks iron very slowly. C—9.

**Rôle of Dissolved Oxygen during the Inhibition of the Corrosion of Iron by Sodium Phosphate Solutions.** M. J. Pryor and M. Cohen. *Nature*, 1951, **167**, No. 4239, p. 157. Continuing previously reported work*, an investigation has been undertaken to determine the effect of dissolved oxygen on the corrosion-rate of iron totally immersed in solutions of sodium phosphate at different *pH* values. The results show that once dissolved oxygen is removed from the phosphate it does not inhibit the corrosion of iron. (*Mayne, Menter, and Pryor, see above abstract C.1951/1297.) C—9.

**Production of Sodium Chlorite: Survey of Prevalent Manufacturing Methods.** Gustaf Holst. *Ind. Engng Chem.*, 1950, **42**, No. 11, pp. 2359-2371. Technical methods of converting chlorine dioxide to sodium chlorite are reviewed briefly. A theoretical discussion is presented of the electrochemistry and thermodynamics of the reduction of chlorine dioxide to chlorite ion. It has been found that lead oxide (litharge) is the most suitable reducing agent for the process, and an investigation of the use of this oxide is described. The economics of the lead oxide process are mentioned, and a bibliography of 34 references is given. C—9.

**Some Historical Developments Relating to Corrosion.** Wilson Lynes. *J. Electrochem. Soc.*, 1951, **98**, No. 1, pp. 3C-10C. Some developments relating to corrosion are listed chronologically, starting with the earliest known recorded works. Excerpts from a few of the earlier papers are given, and early developments in the electrochemical concept of corrosion are summarised. C—9.

**A Synthetic Amphoteric Polypeptide.** Shiro Akabori, Hisaya Tani, and Junzo Noguchi. *Nature*, 1951, **167**, No. 4239, pp. 159-160. The synthesis of an amphoteric polypeptide consisting of lysine and glutamic acid is reported. Details of the synthesis are outlined. C—9.

**Carboxylic Esters: Formation of Crystalline Complexes with Urea.** R. P. Linstead and Margaret Whalley. *J. Chem. Soc.*, 1950, November, 2987-2989. The difference in the behaviour of normal and branched-chain esters in their reaction with urea has been investigated. A number of branched-chain esters failed to form crystalline complexes (or adducts) under conditions which yielded stable adducts from normal esters. Very simple esters also gave no complexes, and this difference in properties has been used to separate mixtures of esters. C—9.

**Colour Reaction of Tryptophane with Aldehydes.** José Giral and José Laguna. *Ciencia* (Mex.), 1950, **10**, 83-4 (through *Chem. Abstr.*, 1950, **44**, No. 22, 10,605[g]). The colour reaction of tryptophane with aldehydes is described and commented upon. C—9.

**Complexes of Trilon-B Acid with two Divalent Metals.** ("Innerkomplexsalze der Trilon-B-Säure mit 2 zweiwertigen Metallen.") Paul Pfeiffer and Erika Schmitz. *Z. anorg. Chem.*, 1949, **258**, Nos. 3-5, pp. 247-256. It is shown that the calcium and zinc salts of copper Trilon-B acid ($C_{10}H_{12}O_8N_2Cu)H_2$, have a considerably different behaviour in aqueous solution, as compared with the corresponding alkali salts. This is due to the copper being much more loosely held in the complex in the case of the first-mentioned salts. C—9.

**Transformation of Some Soluble Proteins into Insolubles by Nucleic Acids.** V. G. Kryukor. *Doklady Akad. Nauk S.S.S.R.*, 1950, **73**, 141-4 (through *Chem. Abstr.*, 1950, **44**, No. 22, 10,754[f]). The transformation of some soluble proteins into soluble form by nucleic acids is described. C—9.

**Mannan from a Seaweed: Structure.** J. K. N. Jones. *J. Chem. Soc.*, 1950, November, pp. 3292-3295. A mannan has been isolated from the seaweed *Porphyra umbilicalis* and its structure investigated using methylation-hydrolysis and periodate oxidation techniques. C—9.

**Plasticizers from Lactic Acid.** C. E. Rehberg, Marion B. Dixon, T. J. Dietz, and P. E. Meiss. *Ind. Engng Chem.*, 1950, **42**, No. 11, pp. 2374-2375. Some properties of 35 plasticizers made by acylating esters of lactic acid with *n*-alkyl carbonates are tabulated. These consist of boiling points and compatibilities with cellulose acetate and polyvinyl chloride. Data are also given for the tensile strength, modulus at 100 per cent. elongation, ultimate elongation, and brittle point for each plasticized vinyl resin. C—9.

**Potato Starch.** R. Barthel. *Die Stärke*, 1950, **2**, 156-159 (through *Chem. Abstr.*, 1950, **44**, No. 22, p. 11,138[i]). Viscosity measurements have been made on solutions of ten starch samples of varying phosphorus content. Starches of low phosphorus content gave low viscosity solutions, while those of high phosphorus content gave high viscosity and high yield. C—9.

**Preparation of Stable Starch Adhesive.** N. A. Spasskii. *Poligraf. Proizvodstvo*, 1950, No. 8, 25-6 (through *Chem. Abstr.*, 1950, 44, No. 22, 11,164[g]). A starch adhesive which does not thicken or lose water for several days can be prepared by heating and stirring starch with calcium chloride or magnesium chloride solutions. C—9.

**Structure and Properties of Cellulose.** Kison Kanamaru and Toshio Hata. *Science* (Japan), 1941, 11, 452-9 (through *Chem. Abstr.*, 1950, 44, No. 22, 11,085[h]). This is a review of the fine structure and mechanical properties of cellulose, with 44 references. C—9.

**Study of the Structure of Starch. II. Structure of Different Starch Modifications.** S. M. Lipatov, B. A. Kartsovnik, and M. S. Shul'man. *Kolloid. Zhur.*, 1950, 12, 286-293 (through *Chem. Abstr.*, 1950, 44, No. 22, p. 11,137[g]). Some properties of native potato starch, soluble potato starch, and potato starch dispersed in a colloid mill have been compared. These properties included dielectric constant of 1 per cent. aqueous solution, heat of solution in water, osmotic molecular weight, copper number, and the size of the molecules (from viscosity measurements in dilute solution and other data). C—9.

**Synthetic Polypeptides: Part I.** W. E. Hanby, S. G. Waley, and J. Watson. *J. Chem. Soc.*, 1950, November, 3009-3013. The preparation of several N-carboxyamino-acid anhydrides is described. The methods that have been used for the polymerisation of these anhydrides are discussed and a new general method has been investigated. In this procedure the anhydrides are polymerised in nitrobenzene solution by amino-acid dimethylamides to give quantitative yields of polypeptides; co-polymers can readily be prepared by this method. The properties of the polymers and co-polymers are described (Author's abstract). C—9.

**Synthetic Polypeptides: Part II: Polyglutamic Acid.** W. E. Hanby, S. G. Waley and J. Watson. *J. Chem. Soc.*, 1950, November, pp. 3239-3249. The synthesis of polyglutamic acid has been investigated. Reduction of poly-(γ-benzyl L-glutamate) by phosphonium iodide proved to be the only method of obtaining the polymeric acid optically pure. The structures of this synthetic polypeptide and the poly-D-glutamic acid isolated from *Bacillus anthracis* have been investigated by infra-red spectroscopy; poly-D-glutamic acid has also been synthesised and compared serologically with the naturally occurring material. (Author's abstract.) C—9.

**Synthetic Polypeptides. Part I. Synthesis of Oxazolid-2:5-diones, and a New Reaction of Glycine.** A. C. Farthing. *J. Chem. Soc.*, 1950, November, pp. 3213-3217. The synthesis of some intermediates in the preparation of synthetic polypeptides is described. These include benzyl chloroformate, oxazolid-2:5-diones, and 4-substituted oxazolid-2:5-diones. A reaction of glycine with sodium carbonate by means of which an oxazolid-2:5-dione can be prepared is also reported. C—9.

**Synthetic Polypeptides. Part II. Properties of Oxazolid-2:5-diones, and an Initial Study of the Preparation of Polypeptides therefrom.** D. Coleman and A. C. Farthing. *J. Chem. Soc.*, 1950, November, pp. 3218-3222. The properties of oxazolid-2:5-dione–solvent systems have been investigated, and the general nature of the formation of polypeptides from solutions of 4-substituted oxazolid-2:5-diones has been established. Apparatus and technique for a quantitative study of the formation of polymers are described. The synthetic polypeptides differ from the natural products in some of their properties. C—9.

**Synthetic Polypeptides. Part III. Initiators for the Co-polymerisation of Oxazolid-2:5-diones.** D. Coleman. *J. Chem. Soc.*, 1950, November, pp. 3222-3229. A controlled comparison has been made of initiators for the co-polymerisation of oxazolid-2:5-diones to produce polypeptides. The alkali-metal salt of an α-amino-acid has been found to be the most satisfactory initiator. By its use co-polymers have been obtained of sufficiently high molecular weights to produce fibres from DL-phenylalanine-L-leucine and DL-phenylalanine-α-amino *iso* butyric acid. Water-soluble polypeptides have been made from L-lysine and L-glutamic acid. C—9.

**The Chemistry of Cellulose and Wood.** Irwin B. Douglas. *Paper Trade J.*, 1950, 131, No. 22, pp. 99-100, 103-106. A general account is given of the chemistry of cellulose, hemi-cellulose, and lignin. A brief bibliography is included. C—9.

**Cellulose: Heats of Wetting of Viscose Rayon and Standard Cellulose in Water.** Maurice Wahba. *J. Phys. Colloid Chem.*, 1950, 54, No. 8, pp. 1148-1160. The heats of wetting of partially saturated samples of standard cellulose* and viscose rayon in water at 30° C. have been determined in the absence of air. The adsorption isotherms at 30° C. of water vapour on these two adsorbents were also determined. Results are presented and discussed. These suggest that the adsorbing area in viscose rayon is nearly twice that in standard cellulose. (*Cotton linters submitted to a high pressure boil in caustic soda—see Wahba, *J. Textile Institute*, 1949, 40, A27.) C—9.

**Degree of Polymerisation: Determination by Molecular Distillation.** H. Booij and H. I. Waterman. *Anal. Chim. Acta*, 1949, 3, 440-4 (in English) (through *Chem. Abstr.*, 1950, 44, No. 22, 10,453[c]). A method and apparatus are described for rapidly determining the degree of polymerisation by molecular distillation of small quantities of substances. The material is distilled from a plate hanging on a spiral spring, by heating with an infra-red lamp. C—9.

**Determination of Osmotic Pressure: Semi-micromethod.** L. Korsgaard Christensen. *Acta. Physiol. Scand.*, 1950, 20, 368-77 (through *Chem. Abstr.*, 1950, 44, No. 22, 10,449[a]). An apparatus, suitable for measuring osmotic pressure in 0·1 ml. of solution with satisfactory accuracy, is described. The molecular weight of β-lactoglobulin determined by this apparatus is 39,590. C—9.

**Effect of a Non-Solvent on Cellulose Acetate Solution.** N. F. Ermolenko and S. A. Levina. *Kolloid. Zhur.*, 1950, 12, 256-64 (through *Chem. Abstr.*, 1950, 44, No. 22, 11,085[b]). The article describes experiments to determine the effect of a non-solvent (water, alcohol, chloroform, xylene) on the viscosity and light scattering of acetone solutions of cellulose acetate. C—9.

**Hydrogen Bond in Nylon.** Pauline Bourre-Maladierè. *Compt. rend.*, 1950, 230, 640-2 (through *Chem. Abstr.*, 1950, 44, No. 22, 10,398[i]). A value of 3 K.cal. is derived for the energy of the hydrogen bond in nylon. The calculation involves approximations to account for the electrostatic effects, dispersion, and repulsion. Carbon-carbon bonds are considered essentially covalent, and carbon-hydrogen bonds as 8 per cent. ionic. C—9.

**Light-Scattering Photometer for Determining High Molecular Weights.** B. A. Brice, M. Halwer, and R. Speiser. *J. Opt. Soc. Amer.*, 1950, 40, No. 11, pp. 768-778. A description is given of a photoelectric photometer designed for the measurement of absolute turbidity, dissymmetry, and depolarisation of dilute solutions of high molecular weight materials, and hence determination of their molecular weight. Data are presented to illustrate the performance of the apparatus. C—9.

**Muscle-like Contraction and Extension of Systems of Polyvalent Molecular-chain Ions.** ("Muskelähnliche Kontraktion und Dehnung von Netzwerken polyvalenter Fadenmolekülionen.") W. Kuhn and B. Hargitay. *Experientia*, 1951, 7, No. 1, pp. 1-11. Muscular contraction involves almost no change in volume, so that a corresponding increase in cross-sectional area is to be expected. It is believed that dimensional changes in high-molecular chain molecules comprising the muscle are dependent on alteration of electrical charge. A model has been constructed in which electrolytically ionisable synthetic chain-molecular systems, that is, systems containing such groups as carboxyl groups, have been compared with natural muscle in respect of behaviour towards change in alkali/acid conditions. The behaviour in each case was found to be similar. C—9.

**Size and Shape of Polymer Molecules in Solution.** H. Mark. *Österr. Chem.-Ztg.*, 1947, 48, pp. 65-77 (through *Chem. Abstr.*, 1950, 44, No. 21, 9775[b]). Methods of determining the size of macromolecules in solution are considered, including determination of the osmotic pressure, light-scattering capacity, sedimentation and diffusion velocity, and sedimentation equilibrium, of the solution. C—9.

**The Influence of Concentration on the Viscosity of Starch Paste.** J. Hofstee. *Chem. Weekblad*, 1950, 46, 515-19 (through *Chem. Abstr.*, 1950, 44, No. 22, 11,139[d]). The influence of concentration on the viscosity of starch paste is described. When potato starch suspensions are heated, the viscosity rises, reaches a maximum, and then falls. The maximum viscosity is reached earlier in the case of concentrated suspensions. Mathematical relationships are derived. C—9.

**The Swelling of Cellulose as a Function of the Structure of the Fibre Surface.** Germano Centola and Domenico Borruso. *Ind. carta* (Milan), 1949, 3, pp. 79-84 (through *Chem. Abstr.*, 1950, 44, No. 22, p. 11,087[b]). Photomicrographic studies demonstrate that the treatment of cellulose with alkaline solutions has an important effect on the papermaking qualities of the cellulose, in that it alters the surface in a manner more or less favourable to further processing. Such treatment may favour swelling, which weakens the compact structure of the primary membrane and permits chemical attack, or may prevent the formation of a compact surface layer by the action of natural colloids. C—9.

**A Quick-Operating Enlarging Easel.** Fred. O. Stead. *Brit. J. Photogr.*, 1951, 98, No. 4734, p. 68. Instructions are given for the construction of a simple easel for holding and masking printing paper, for use with horizontal enlarging equipment. C—9.

**Bleaching of Malachite Green.** W. Jost and K. G. Fahlbusch. *Z. anorg. Chem.*, 1950, 262, pp. 79-80 (through *Chem. Abstr.*, 1950, 44, No. 22, p. 10,523[e]). Data are given for the quantum yield for bleaching Malachite Green in dilute solution (at *pH* 3) by polychromatic light. C—9.

**Fluorescence of Solids: Influence of Temperature.** F. A. Kröger and W. de Groot. *Philips Tech. Rev.*, 1950, 12, No. 1, pp. 6-14. The effect of the dissipative processes (which tend towards quenching of the fluorescence) on the efficiency of the fluorescence of all kinds of substances is explained. As temperature rises, quenching increases and decay time decreases. Methods for measuring the efficiency of the fluorescence and the duration of the decay are briefly discussed, and the results of the measurements for simple cases are compared with the theory. Mention is made of the complications which arise in less simple cases where efficiency depends also on intensity of irradiation. C—9.

**Problems and Techniques in Industrial Photography.** Walter Nurnberg. *Funct. Photogr.*, 1951, 2, No. 5, pp. 6-9. The choice of camera, and lighting technique for use in industrial photography are briefly considered. Several photographs of industrial interest are shown. C—9.

**Colour Measurement.** ("Mesure des couleurs et teintures.") O. Peters. *Rayonne*, 1951, 7, No. 1, pp. 43-48. This, the first of a series of articles on the measurement of colour, is devoted to demonstrating the effect, on colour intensity, of simple reflection, simple transmission, (including Lambert's Law, Beer's Law and the law of refraction) and combined reflection and transmission of light. C—9.

**Interferometric Studies in Diffusion. Part II. Influence of Concentration and Orientation on Diffusion in Cellulose Acetate.** J. Crank and C. Robinson. *Proc. Roy. Soc.*, **A**, 1951, 204, No. 1079, pp. 549-569. The techniques developed in part I* have been used to study the diffusion of the five penetrants—chloroform, acetone, methylene chloride, water, and methyl alcohol—into stretched cellulose acetate sheet. The diffusion coefficient-concentration relationship for diffusion at right angles to the direction of stretch was obtained at 25° C. for the first three penetrants, and also at 40° C. for chloroform. Photographs of interferometer fringe systems in the neighbourhood of a corner of the cellulose acetate sheet are shown for each penetrant. The degree of anisotropy was studied quantitatively for chloroform and acetone. New evidence is provided on the nature of the sharp boundaries seen under the microscope when a penetrant enters a poly. (*See *J. Textile Institute*, 1951, 42, A244.) From Author's Abstract. C—9.

**Interferometric Determination of Moisture in Nitrocellulosic Materials.** B. S. Gukham, B. I. Petrov, and T. I. Yakovlev. *Zavodskaya Lab.*, 1948, 14, pp. 1264-1265 (through *Chem. Abstr.*, 1950, 44, No. 22, 11,087[a]). The sample of

nitrocellulosic material is shaken with 40 per cent. calcium nitrate solution in a closed flask, filtered through a dry filter, and the interferometric-fringe shift is compared relative to the initial solution. C—9.

**Scattering of Light by Solutions of Large Molecules.** J. J. Hermans. *Plastica* (Holland), 1950, 3, 187-90, 222-5 (through *Chem. Abstr.*, 1950, 44, No. 22, 10,449[e]). The theory of the turbidimetric determination of molecular weight and size is reviewed. C—9.

**The Physical Eye Photometer, Colorimeter and Spectrophotometer.** G. T. Winch. *Instrum. Pract.*, 1951, 5, No. 3, 137-144. A description is given of a "physical eye photometer and colorimeter" which has been designed to give light value measurements in accordance with those which would be obtained by the hypothetical "Standard Observer". In principle, the light to be measured is dispersed, and a critically shaped mask is placed in the plane of the spectrum so formed. This attenuates the coloured light in the various parts of the spectrum in appropriate proportions. The light, after passing through the mask is recombined on to a photoelectric receptor. Five applications of this instrument are indicated. C—9.

**A Circuit for the Automatic Stabilisation of X-Ray Tube Current.** C. S. Lees and M. D. Armitage. *J. Sci. Instrum.*, 1950, 27, No. 11, pp. 300-301. Details are given of a circuit which will automatically control the electron emission in an X-ray tube to a constant value. C—9.

**A Simple Manometer for Use in Measuring Low Air Velocities.** D. B. Spalding. *J. Sci. Instrum.*, 1950, 27, No. 11, pp. 310-312. Two designs of a simple direct-reading instrument are described for measuring steady differential air pressure down to 0·002 mm. of water column. The differences of liquid level are magnified by the tilting of a mirror supported on floats. (Author's abstract.) C—9.

**Apparatus for Absolute Rheological Determinations of Easily Determinable Consistent Materials.** T. Ya. Gorazdovskiĭ. *Zavodskaya Lab.*, 1949, 15, pp. 554-7 (through *Chem. Abstr.*, 1950, 44, No. 21, p. 9745[h]). The apparatus described permits readings accurate to ±5 per cent., and determination of the modulus of shear, the viscosity coefficient, the relaxation and retardation periods, and a series of rheological functions. C—9.

**Circuit and Vector Diagram Conventions.** M. G. Scroggie. *Electr. Rev.*, 1951, 148, No. 3820, pp. 267-271. Some electrical circuit and vector diagram conventions are examined critically and a generalised form of diagram is suggested. C—9.

**Evaluation of X-Ray Patterns from Gases, Liquids and Crystals with a New Calculating Machine for Fourier Syntheses.** W. Hoppe. *Z. Elektrochem.*, 1950, 44, No. 21, p. 9794[e]). A mechanical analogue computer is described, in which the terms are added as displacements of a rod positioned against successive sinusoidal templates corresponding to the varous frequencies. A one-dimensional synthesis of 14 terms can be simultaneously evaluated at 24 points in 5-10 minutes. C—9.

**Indirect Action of X-Rays and Ultra-violet Rays.** ("L'action indirecte du rayonnement X et ultra-violet.") Z. M. Bacq. *Experientia*, 1951, 7, No. 1, pp. 11-19. The indirect action of röntgen or ultra-violet radiations on solutions of proteins, or other acceptors, is defined as the ionisation of the solvent with the generation of free radicals which react with the proteins or other substances. The nature of the substances formed by the radiations, of which the effect is mainly indirect, is that of an oxidising agent, that is, peroxides in the case of ultra-violet, and short-lived oxidising radicals in the case of X-rays. It has been shown that prior injections of certain substances, for example, cyanides, azides, cystine, and thiourea, exert a protective action. C—9.

**Instrumentation Studies. LVII. Equilibrium Relative Humidities.** W. A. Wink and George R. Sears. *Tappi*, 1950, 33, No. 9, 96-99A (through *Chem. Abstr.*, 1950, 44, No. 22, 10,416[b]). Data are given on the equilibrium relative humidities over 17 saturated salt solutions at 73, 86 and 100° F. C—9.

**Low-Angle X-Ray Scattering from Ramie and Jute.** J. Adam. *Nature*, 1951, **167**, No. 4237, p. 78. Some of Heyn's* experiments have been repeated in a study of the structure of jute and other fibres. Measurements of the low-angle X-ray scattering from flax, hemp, and jute agreed closely with results reported by Heyn, but abnormal behaviour by ramie was not confirmed. The effect produced by removal of lignin upon the intermicellar swelling of jute fibre in water has also been examined. It is concluded that lignin in jute hinders intermicellar swelling in water. (*See for example, *J. Textile Institute*, 1949, **40**, A395, A421.) C—**9.**

**Measuring and Evaluating Noise.** A. H. Fiske, Jr. *Gen. Electr. Rev.*, 1950, **53**, No. 11, pp. 29-31. Different methods of measuring noise are described and discussed. Reference is made to a new type of instrument, the Sonagraph, which builds up a picture of the sound, using the horizontal axis as time and the vertical as frequency. C—**9.**

**Microhardness, Mohs Hardness, and a Hardness Scale.** M. M. Krushchov. *Doklady Akad. Nauk* S.S.S.R., 1950, **72**, pp. 779-780 (through *Chem. Abstr.*, 1950, **44**, No. 22, p. 10,424[e]). The microhardness test is discussed. Microhardness is defined for diamond pointers shaped as four- or three-sided pyramids. A linear function is valid between the log of the "hardness class", $H_o$, and the Mohs hardness number. $H_o$ is defined as a function of the load (in kg./eq.mm.) required for a constant impression in the microhardness test. One class on the Mohs scale extends over several classes on the microhardness scale, and, with the latter, considerably improved and more accurate definitions of abrasive hardness are possible. C—**9.**

**Rapid Calculation of Size Distribution of Spherical Particles in a Non-transparent Solid.** A. G. Spektor. *Zavodskaya Lab.*, 1949, **15**, pp. 1134-1135 (through *Chem. Abstr.*, 1950, **44**, No. 22, p. 10,458[h]). Equations are given for calculating the size distribution of spherical particles in a non-transparent solid. The volume, surface area, number of particles per unit area of field, and the maximum diameter of the particles of the dispersed phase (values of which are required for the calculation) are determined by microscopic observation of several fields. C—**9.**

**Temperature Effect in Geiger-Müller Counters.** Motoharu Kimura. *Phys. Rev.*, 1950, **80**, No. 4, pp. 761-762. A brief report is given of the results of an investigation of the effects of temperature changes on the counting rates of Geiger-Müller counters. C—**9.**

**The Effect of an Electric Field on the Viscosity of Liquids. Part II.** E. N. da C. Andrade and C. Dodd. *Proc. Roy. Soc.*, **A**, 1951, **204**, No. 1079, pp. 449-464. Further experiments* are reported on the effect of an electric field on the viscosity of liquids. Apparatus and methods are described by means of which comparative viscosities, with and without field, can be measured to within a few parts in a million. With a non-polar liquid (benzene), no effect has been observed. In the case of polar liquids (monochlorobenzene, chloroform, and amylacetate) there is a small increase of viscosity proportional to the square of the field. A brief theoretical discussion is given. (*For Part I, see *J. Textile Institute*, 1947, **38**, A92.) C—**9.**

**Quaternary Ammonium Compounds.** E. W. Dennis. *Soap*, 1951, **27**, (3), 117, 119, 121, 123, 131, 133. It is suggested that an *in vivo* assay, using violent *streptococcus pyogenes* offers a realistic method of evaluating quaternary ammonium germicides to be used for sanitizing eating and drinking utensils, and indicate that benzalkonium chloride is a highly efficient disinfectant not significantly affected by hard water. La—**9.**

**Cellulose: Fractionation.** S. Coppick, O. A. Battista and M. R. Lytton. *Ind. Engng Chem.*, 1950, **42**, 2533-2538. A summative method for the fractional analysis of cellulose is described and its advantages and disadvantages are indicated. A mathematical interpretation of summative data is given and the conversion of summative distribution data to more common integral and differential plots is illustrated. Differential distribution curves are also given for several rayons and rayon wood pulps. La—**9.**

**Moisture Estimation.** A. H. Ward. *Ind. Heating Engr.*, 1951, **13**, 50-52. A review of the various methods of estimating moisture: (1) oven, (2) distillation, (3) chemical, (4) electrical. La—**9.**

## 10—ECONOMICS

**Development of the Rayon Industry in Western Europe.** ("Les Debuts et le développement de l'industrie de la rayonne en Europe occidentale.") G. Placq. *Rayonne*, 1951, 7, No. 1, pp. 11-16. A historical survey is made of the development of the rayon filament and staple fibre industries in Western Europe. Production figures are given for the last few years. A supplementary article gives brief production surveys for France, Belgium, Austria, Great Britain, Italy, and Holland. C—**10.**

**Japanese Competition.** Hervey Rhodes. *Text. Whly*, 1951, 47, No. 1195, pp. 376, 378. A report is given of an address by the Parliamentary Secretary to the Board of Trade on Japanese competition in the textile trade. A brief report of an ensuing discussion is also given (*ibid*, 378-379). C—**10.**

**Rayon Capacity Survey.** (United States). Anon. *Rayon Org.*, 1951, 22, No. 1, pp. 4-11. The annual capacity of the industry is estimated at 1,306,000,000 lb. Both world rayon production and U.S. staple imports reached record figures in 1950. Tables are given showing production for 1940-49 and capacity production estimates to October 1952, and prices and imports for 1950. Annual production, shipment, *etc.*, figures for 1950, are delayed to the February issue. C—**10.**

**Textile Productivity and Cost Accounting.** A. Thompson. *Text. Mfr*, 1951, 77, January, 40-41. The recommendations concerning cost accounting advocated by the Anglo-American productivity teams are discussed, and, in particular, the "standard cost system". C—**10.**

**The Australian Cotton Industry.** R. G. Casey. *Text. Merc.*, 1951, 124, No. 3227, pp. 245, 247. Some extracts are presented from a review of the Australian cotton industry prepared by the Minister for National Development. Besides giving details of production, imports, and exports of cotton textiles, the report indicates opportunities that exist for the production of certain goods. C—**10.**

**Wage Incentive Schemes.** Anon. *Ministry of Labour Gazette*, 1950, 58, No. 10, pp. 329-333 (through *Management Abstr.*, 1951, 4, No. 1, p. 16). In April 1950 an enquiry was conducted, into the operation of wage incentive systems in a large number of establishments. An analysis of the replies by industry and size of establishment is given. C—**10.**

## 11—INDUSTRIAL WELFARE, INDUSTRIAL PSYCHOLOGY AND EDUCATION

**Atmospheric Pollution.** Louis C. McCabe. *Ind. Engng Chem.*, 1950, 42, No. 11, pp. 115A-116A. A summary is given of a report of the Los Angeles County Air Pollution Control District. This report summarises the results of a two-year study on "air contaminants", and describes the sampling and analytical methods employed. C—**11.**

**Employment Practices for Chemists and Chemical Engineers.** Committee on Economic Status of Chemists. *Chem. & Engng News*, 1951, 29, No. 4, pp. 274-277. The results of a survey of American employment practices for chemists and chemical engineers are presented. The survey was carried out in questionnaire form, and the questions used, together with charts showing the relative numbers of the types of answers received are given. C—**11.**

**Hat and Allied Feltmakers Research.** Anon. *Fibres*, 1950, November, pp. 398-400. The Hat and Allied Feltmakers Research Association opened new laboratories at Fairfield, Manchester, in September 1950. Some of the work in progress is described. C—**11.**

**Insecticides in Industry and Public Health.** H. Pirie. *Chem. & Ind.*, 1951, No. 6, pp. 100-104. After a brief survey of some of the more important insecticides now available, an account is given of the use of such insecticides in controlling insect pests and insect-borne diseases in tropical countries. C—**11.**

**Origin of Histamine.** Montrose T. Burrows. *Urol. and Cutaneous Rev.*, 1950, 54, 296-303 (through *Chem. Abstr.*, 1950, 44, No. 22, 10,881[a]). It is suggested that the histamine peculiar to allergies may come from histidine liberated from foreign protein in contact with a dead body, which also forms an area in which putrefactive organisms grow. In the series of allergies investigated, the dead body found was most often part of a first tooth, abnormally remaining in the gums as the second teeth developed. C—11.

**Professional and Technological Education and the Textile Industry.** ("Enseignement professionel et technique et Industrie textile.") P. Ghesquière. *Rayonne*, 1951, 7, No. 1, pp. 109-115. (4 pages) The influence of industrialisation on the significance of education is discussed. A plea is made for retaining, in technical education, the development of judgement, reflection and personality, even though "concrete" knowledge is replacing the former "abstract" learning. C—11.